FIRST SERIES NO. 167 NOVEMBER 15, 1928

UNIVERSITY OF IOWA STUDIES

STUDIES IN CHARACTER

VOLUME II NUMBER 2

A Comparative Study of Those Who Accept as Against Those Who Reject Religious Authority

by

THOMAS H. HOWELLS, PHD.

PUBLISHED BY THE UNIVERSITY OF IOWA, IOWA CITY, IOWA

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STUDIES IN CHARACTER

Edwin D. Starbuck, Editor

FROM THE INSTITUTE OF CHARACTER RESEARCH

Volume II **Number 2**

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FOREWORD

Whatever else religion may be it is certainly at least a complicated function of an indefinite variety of human experiences. It is possible to unravel the manifold of these experiences that interweave into patterns or types of religiosity. This study of conservatives in religion versus radicals is a successful analysis of some of the factors of mentality that conspire to create or condition the opposing types that stubbornly accept and reject the prevailing doctrines and dogmas. It gets a start at doing for religion and for personality what botany does for plants and zoology for animal organisms. It points towards many an insight into human nature and into the meanings and functions of religion.

A clean-cut study of this kind will despoil chapters of preformed, home-made wisdom and volumes of argumentation between opposing camps. It will be a relief to both to let the facts bear the burden of the argument. It will be profitable psychologically and practically to come to seek the subjective as well as the objective grounds of religious assent.

This study and the companion one by Dr. Sinclair represent, perhaps, the first attempts to apply rigorously empirical methods with a high order of objective control including experimentation to the study of a religious problem.

EDWIN D. STARBUCK.

ACKNOWLEDGMENTS

The writer is chiefly indebted to Dr. Edwin D. Starbuck, who originated the idea of making an empirical study of types of religious persons. His courage in undertaking difficult tasks, if thereby he might get at the heart of things, has been a constant source of inspiration. Dean C. E. Seashore and Dr. C. A. Ruckmick have both given invaluable advice and assistance. Dr. F. K. Shuttleworth has contributed generously all along the way. Much credit is due to Mr. R. D. Sinclair, who coöperated in a large part of the experimental procedure, and also to the instructors and students in psychology who made it possible to obtain the data of this study.

CONTENTS

Foreword 3
Acknowledgments 4
Introduction 7
Chapter I. Separation of Conservatives from Radicals 11
    Procedure used in selecting cases 11
    Validity of the procedure 15
Chapter II. Sensori-motor Characteristics 19
    The lines of approach 19
    Sense discrimination 21
    Motor ability 25
    Motor tendency 29
Chapter III. Volitional Characteristics 31
    Suggestibility 31
    Perseverance 35
Chapter IV. Intellectual Characteristics 40
    Imagination 41
    Association and general intelligence 42
Chapter V. What the Subjects Say About Themselves 48
    Personal data 49
    Emotional data 50
    Social attitudes 51
    The home 51
    Religious background 54
Chapter VI. Review of Findings 58
Bibliography 64
Appendices 66

INTRODUCTION

One of the most inviting problems in connection with the phenomena of religion is that which deals with the diametrically opposite attitudes human beings take toward religious authority and religious tradition. Practically everyone is brought, at one time or another, into immediate contact with some of the representative religious institutions. People differ as to the way they meet this situation. Certain individuals react impulsively in the direction of acceptance of authority and tradition; others react against the prescribed ways of belief and practice; while the rest tend to arrange themselves in all degrees of compliance or rejection. These persistently opposite attitudes of persons toward religious *mores* and institutional demands constitute in no small measure the interest in the drama of history and of social progress. There is always the tendency of those who would enforce the will of the group and conserve ancient traditions playing against the antipathies of restless minds who wish for freedom and the open road. These antagonistic types are always with us and provide a constant challenge to the student. They were the incentive for the present investigation. Its object is a better understanding of the qualities of personal make-up that distinguish those who, in general, tend to accept and support the typical forms of religious authority from those who reject and oppose them. From among the many pairs of terms used to designate these opposite types we have chosen to call them the *conservatives* and the *radicals.*

It should be clear at the outset that the present study is an empirical one. It has no brief of any sort for conservatism or for its opposite. It wishes to discover objectively and on the basis of controlled data the elements in human nature that are the causes or conditioning factors of these persistent attitudes. A logical or psychological division of the concepts of conservatism and radicalism has no place in the present program. On the contrary, it is a first-hand investigation of the personality of some typical conservatives in college and a corresponding group of radicals.

The problem that first presented itself was that of securing a group of persons of sufficient number and diversity so that a cross-section picture of them might be fairly representative of human beings in general. Such a group was found in the 542 students registered in an elementary psychology course in the University of Iowa, 1925-1926. It is a required subject for several departments and is freely elected by many students apparently without reference to their religious notions or affiliations. Within this representative group it was possible to separate the religious conservatives from the radicals; or rather, since few persons are unqualifiedly of either type, to assay out the elements of radicalism and of conservatism within the aggregate. By the use of a graduated scale of intensity of belief and attitude the entire number of individuals were successfully arranged in a series all the way from the most conservative to the most radical. A detailed account of this procedure will occupy the first chapter.

Since a method was discovered of indicating the degrees of radicalism and conservatism quantitatively, it was found possible to validate the ratings indicative of the two opposite types. This was done by the use of statistical methods of comparison. By means of this technique the various factors in human experience determining the attitudes in question can be distinguished. In other words, by the aid of correlation methods, it is possible to form many pictures of the setting of conservatism and radicalism in the midst of commonplace elements of mentality.

Once a measure of conservatism had been obtained, the next step was to select fifty cases on either extreme of the distribution and compare these groups on the basis of the scores they made in a battery of tests in the psychological laboratory.

Whatever value this investigation may have is in no small measure due to the fact that it has based its conclusions on objectively determined and controlled data. It adds to the trustworthiness of the findings usually sought through correlations, a body of data which is based upon mental tests and laboratory achievement scores expressed in numerical units. The testing program was made possible through the courtesy and assistance of the laboratory staff of the Department of Psychology of the University of Iowa. It was carried out in coöperation with the staff of the Institute of Character Research and particularly with the assistance of Dr. R. D. Sinclair.

CHAPTER I

SEPARATION OF CONSERVATIVES FROM RADICALS

I. PROCEDURE USED IN SELECTING CASES

The first step in an empirical study of two contrasted groups of individuals is to devise a procedure which will insure accurate separation and characterization of these groups. For the purpose of drawing out the conservatives in religion from the radicals a new point-scale, self-rating test that had been evolved by members of the Institute of Character Research during the school year of 1923-1924, and given a preliminary trial during the year 1924-1925, was used. This preliminary year of trying out and improving the scale yielded a convincing body of evidence showing that it was suitable for the measurement of religious and other attitudes. The present study was made possible by adapting this technique to the measurement of religious conservatism as well as a great variety of personal and social traits.

A unique feature of this self-rating mechanism is its dichotomous or bipolar characteristic. The subjects were asked to rate themselves on a dotted line between the extremes of each of many contrasted pairs of qualities or attitudes. They were to check a colon in the center of the scale if in their own minds they resembled the average individual in that particular respect or seemed to possess equal amounts of both qualities. If they were more strongly inclined toward one than toward the other, they were asked to check to the right or left as far as best represented their case. A typical section of the scale follows:

Very dark hair	. . . : . √ .	Very light hair
Very light eyes	√ . . : . . .	Very dark eyes
Extremely blonde complexion	. √ . : . . .	Extremely brunette
Always healthful	. . . √ . . .	Extremely delicate health

A fair-haired, blue-eyed, light complexioned person of average health would rate himself somewhat as indicated above.

The sample just given illustrates a number of the advantages of this procedure. The subject is not asked, "Are you in good health? Answer *yes* or *no;*" but is given the opportunity of indicating relatively where he stands with respect to the average. He is not asked the general question, "Are you blonde or brunette?" Rather, he is asked about three aspects of this trait. The possibility of reversing the pairs of contrasted qualities as illustrated by the first two items prevents the subject from making a stereotyped response. Thorough intermingling of a score of definitive items among a larger number of items dealing with irrelevant qualities insures that each judgment shall really be a separate and independent one, and usually leaves the subject at the end of the test in total ignorance of its purpose. Another advantage is the use of a scale which permits the subject to report the relative degree or amount of the tendency he has in either of the two opposite directions. Thus quantitative measures of tendency are obtained which not only give a truer picture of the real attitude of the subject but also permit of statistical comparison of the scores and the measurement of relationship between the attitudes involved. Perhaps the most important characteristic of this rating technique is that the mind is held taut between two directly opposite concepts so that it is possible for a person to locate himself definitely along the scale of values lying between.

The first problem, therefore, that presented itself in connection with the present study was that of constructing a rating test which would differentiate the conservatives from the radicals. Professor Edwin D. Starbuck, Dr. Frank K. Shuttleworth and Mr. R. D. Sinclair coöperated with the writer in adapting the self-rating technique just described to serve this purpose. The diagnostic values of many of the items were already known from the earlier studies. It was possible to incorporate these items into the test with little change. In constructing new items an effort was made to keep each as specific and definite as possible, uniform in context and as indicative as possible of conservative or radical tendency.

The rating test in its final form (see Appendix I), consisted of a total of 160 items. It was given to 542 students in elementary psychology in April of 1926. The students were advised that the data obtained were to be used only in research studies and that their names would not be published in any way. As far as could be determined, the ratings were carefully and honestly made.

As a criterion of the range of tendency from radicalism to conservatism the twelve items that seemed most clearly diagnostic were chosen. These items[*], which have been rearranged so that the conservative trend is uniformly on the left side of the page, are as follows:

Sympathetic with doctrines of church	. . . : . . .	Antagonistic toward doctrines of church[†]
Believe the Bible to be infallible	. . . : . . .	Disbelieve it
Believe Jesus was born of a virgin	. . . : . . .	Disbelieve it
High respect for the Bible as authority	. . . : . . .	Indifferent to the authority of Bible
Most preachers are sincere	. . . : . . .	Preachers play on superstitions of people
We should cling to the faith of our fathers	. . . : . . .	We should depart from the faith of our fathers
Enjoy sermons	. . . : . . .	Dislike sermons
Believe Old Testament story of creation	. . . : . . .	Disbelieve it
Believe Jesus walked on the water	. . . : . . .	Disbelieve it
Believe religion is largely superstition	. . . : . . .	Disbelieve it
Believe Lazarus was raised from the dead	. . . : . . .	Disbelieve it

Values of from 0 to 6 were assigned to the points on the scale and the scores of the twelve items were added, the total score being considered a measure of conservatism. The norm, that is, the supposed position of the average individual with which the student was asked to compare himself, is represented by a total score of 36. There were 542 scores altogether, which arranged themselves approximately according to the normal curve of distribution (see Figure 1). The mean score was 45.5 and the standard deviation 15.3.

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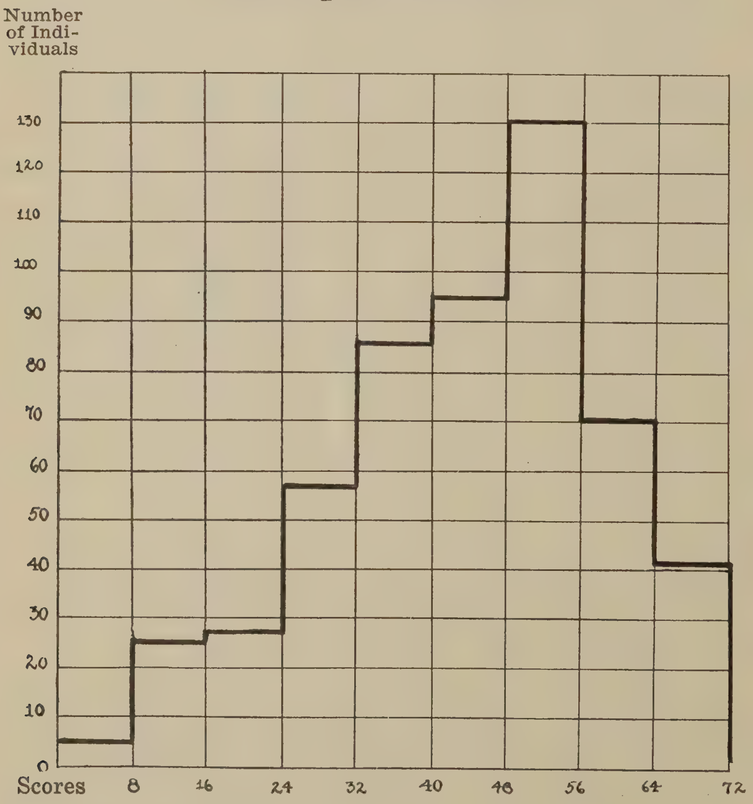
[*] Numbered 10, 22, 30, 51, 62, 63, 64, 66, 69, 70, 71 and 108 in the test (see Appendix I). Items 22 and 63 were designedly the same, in order to test the relative reliability of an item appearing twice. It is interesting to note that the correlation of the item with the group increased from .47 with the first use of the item to .86 with the second.

[†] Used twice; *see* preceding note.

FIGURE 1.

Distribution of Scores of 542 Students On Point-Scale Self-Rating Test for Religious Conservatism



As has been previously stated, the principal aim of this study was to obtain empirical data regarding two directly opposite types of people differing in their attitude toward religious authority. The plan was to select from the extremes of the distribution as many cases as could be studied by objective methods in the psychological laboratory. For this purpose, fifty-one of the most extreme radicals and fifty of the most extreme conservatives were chosen for intensive study. The radical group thus obtained consisted of 23 men and 28 women: no Catholics, 23 Protestants, and 2 Jews. The conservative group was made up of 14 men and 36 women: 22 Catholics and 28 Protestants.

For the purpose of calculating correlations between conservatism and other data, such as intelligence test scores, which were available on all of the 542 persons, the total number of cases was used.

II. VALIDITY OF THE PROCEDURE USED IN SEPARATING CONSERVATIVES FROM RADICALS

A most important preliminary consideration, before presenting the results of the laboratory tests of the opposed groups of conservatives and radicals, is the question whether the procedure just described really does differentiate two groups and whether they are really conservatives and radicals. Three major lines of evidence indicate that a valid separation has been successfully achieved. These evidences are the high reliability of the scores, the exact nature of the items used in scoring the cases, and the agreement in the evidence supplied by a questionnaire given to the two groups.

For a test of only twelve items the reliability of the scores is exceedingly high. Correlating the scores on a chance half against the other chance half gave a correlation of .852±.008. This figure represents the certainty with which one of the chance halves will reproduce the classification made by the other. The reliability of the whole group of items was calculated according to Brown's formula and found to be .92. According to Otis, if a similar test effecting the same classification as the first were given to the same group, the chances are fifty-eight in one hundred that this second test would place the same individuals in the same tenth of the distribution, and there are approximately ninety-nine chances in one hundred that a case would not be displaced further than into the adjacent tenth (33, p. 225).

As regards the extreme groups it is probable that, if the same standards were used on the data obtained from a second application of a similar test, the membership of the groups would not be varied by more than sixteen cases. The chances that any one of these sixteen cases would be displaced as much as two "tenths" in a second test are less than one in one thousand, and that any case selected for either group might be displaced more than two "tenths", or enough to make it fall on the other side of the median and thus change its classification from conservative to radical, or vice versa, are infinitesimal.

These data clearly show that two diametrically opposed groups have been selected with fine precision and that the scores on the total of 542 cases place each individual with fair accuracy in relation to the whole group. These reliabilities do not, of course, establish all of the characteristics of the opposed groups but simply show that they are opposed with respect to some trait.

The character of the contrasted groups is partly established by the type of test item used in differentiating them. A study of the twelve items chosen as the criterion of conservatism, certain statistical evidence, and the opinion of a group of 24 judges indicate that these items are really diagnostic of conservatism or radicalism. The conservative group reacts consistently to the extreme left of the line of dots accepting religious authority, institutions and beliefs. The radical group reacts consistently to the extreme right of the line of dots, rejecting religious authority. While a conservative, for instance, may give a reaction of the radical type to a certain item, it is the consistent marking, ten or eleven times out of twelve, to the extreme left of the dotted line which characterizes him. In forming a judgment whether these items really measure the trait under consideration it should be kept in mind that it is this highly consistent tendency in the reactions which is definitive of the two groups. One or two items may or may not appeal to the reader as diagnostic of the conservative or the radical, but the only interpretation that can be placed on the group as a whole, is that they are clearly definitive.

Certain statistical evidence also supports the thesis that the validity of these items must be judged as a whole. This evidence is the correlation of each item with a group of the six most diagnostic ones. Coefficients were obtained ranging from .50 to .87. These data seem to show clearly that the twelve test items do measure the same thing and therefore should be evaluated as a whole.

Further evidence on the character of the test items was obtained from 24 graduate students who were asked to go through the test and pick out those items which they thought diagnostic of conservatism and radicalism in religion. They were also asked to rank these in order of their value for the purpose in hand. The twelve items actually used appear among the first fifteen selected by this group of 24 graduate students as most indicative of the conservative and the radical. Three items in the first fifteen did not prove to correlate highly with the rest of the group of items and accordingly were not included.

The third line of evidence supporting the thesis that the opposed groups are really conservatives and radicals comes from the examination of certain replies to a questionnaire (See Appendix II). This questionnaire was sent out to the 101 members of the extreme groups. Seventy-four replies were received. In order to discover whether these replies were in support of or opposed to the evidence obtained from the rating test, an attempt was made to compare the replies with reference to the impression they produce on casual readers. Twelve university graduates, who were kept in ignorance of the names of the members of these groups, were asked to read over the replies to the questionnaire and make an estimate of the religious attitude of the writers and label them as either *radical, conservative,* or *doubtful.*

Of the 32 conservatives who replied to the questionnaire, 29 were unanimously labelled *conservative* by all of the judges. Twenty-four of the 36 judgments on the remaining 3 cases were *conservative.* Eight ratings were *doubtful.* No conservative was judged to be *radical.*

Of the 42 radicals who replied to the questionnaire, 23 were so labelled by all of the twelve judges, and 30 by ten of the judges. Approximately 10 per cent of the total, or 46 ratings, were *doubtful*, but these were scattered among 17 of the radicals. In no instance was a radical judged to be a conservative from reading his questionnaire.

It will be noted that no actual errors were made in these estimates. No conservative was mistaken for a radical, and no radical for a conservative. In instances where a *doubtful* estimate was given, the replies to the questionnaire were so brief and uncommunicative that some judges felt there was not enough evidence to warrant an opinion.

To summarize, the validity of the separation and characterization of the two groups rests on strong evidence. According to the customary statistical checks, the test scores were highly reliable, yielding a coefficient of reliability of .92. Other statistical evidence showed that the test items were measuring the same trait in each case; and the judgments of 24 graduate students indicated that the items were such as should separate religious radicals from conservatives. In addition, twelve people, examining 74 supplementary questionnaires filled out by the members of the two extreme groups, unanimously agreed in labelling 51 of the cases as either conservative or radical. In only 6 per cent of the ratings made were the judges uncertain as to which classification was appropriate. In no instance was a radical mistaken for a conservative, or vice versa.

CHAPTER II

SENSORI-MOTOR CHARACTERISTICS OF THE RELIGIOUS CONSERVATIVE

I. THE LINES OF APPROACH

As stated in the previous chapter, the primary technique of this study consisted in isolating, from a large aggregate of individuals, a group of those who are extremists in their tendency toward unqualified acceptance of traditional religious beliefs. This was done in order to compare them, on the basis of objective and empirical data, with a similar number of people selected because of their complete rejection of these beliefs. In the previous chapter the means used to distinguish these extreme types of individuals was explained. The following chapters will consist chiefly of a report of the results of an intensive examination and comparison of the fifty people making up each of these groups.

The principal source of information about the constituency of the groups was the data obtained from objective tests made in the psychological laboratory. The description of the procedure and results of these experiments will occupy the next three chapters.* All of the individual tests were given in small rooms with only the experimenter and the subject present. Some of the tests which were well adapted for the purpose were given to the students in small groups. One half of the testing procedure was carried out by Mr. R. D. Sinclair (50), the other half was done by the writer.

In each instance the tests devised were selected with the purpose of obtaining some empirical evidence regarding a few

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*Due to the fact that this report is not concerned primarily with the minutiae of experimental technique and procedure, these details have been omitted in this publication. Research workers and others who are interested in the particulars of the procedure or in the original data are advised to refer to the original thesis by Thomas H. Howells, *A Comparative Study of Those Who Accept, as Against Those Who Reject, Religious Authority,* which is on file in the library at the University of Iowa.

of the most prevalent theories in regard to the conditioning factors entering into the make-up of conservative and radical personalities. The hypotheses on which these tests were based, while representative of theories developed by various writers in the psychology of religion, are more largely the product of suggestions made by Professor Starbuck in his direction of the study. These hypotheses deal principally with the relative importance of motor and sensory ability, suggestibility, immediacy of motivation, and intelligence as characteristics of the members of the two groups.

For the sake of convenience in describing the procedure and presenting the results of the tests, they have been divided into three classes according to the classes of human characteristics with which they principally deal. This order of presentation is as follows:

1. Sensori-motor characteristics
2. Volitional characteristics
3. Intellectual characteristics

The present chapter deals with the first of these topics. Its purpose is to examine those qualities that have to do with the adjustment of the individual to his immediate environment, or, in other words, with the ability of his sensory and motor equipment to function quickly and accurately. While it was not possible to examine all, or even a large number of the phases of the human action system, yet the tests that were made may afford some indication of the relative efficiency of the stimulus-response mechanism of the religious conservative as compared with the religious radical.

Conflicting opinions on this point among the writers in the field indicate the importance of an appeal to experimental data. Some writers, such as McComas (26) and Giddings (10), hold to the view that the religious conservative is the physically active, rather than the intellectually active, type of person. Jung (16) and Freud (8, p. 277) seem to believe that the dogmas of the church provide an avenue of imaginary escape for those who have found the world too hard to deal with and life-situations too difficult to meet. On the other hand, certain writers on the subject of mysticism, including James (14, p. 240), Starbuck (54), Pratt (35, p. 371) and Knight (20, p. 271) have suggested that certain types of religious persons (e.g. the mystics) are devout because they are more acutely sensible of their environment and have keener powers of appreciation and discrimination. Whether the conservative has anything in common with the mystic is yet to be determined. As to which, if any, of the previously mentioned theories is correct, we will let the facts speak for themselves. Certainly these theories need proof or disproof.

II. SENSE DISCRIMINATION

Visual Discrimination Test No. 1*

The first of the tests dealing with sense discrimination had to do with the relative ability of the fifty-one members of the radical group and the fifty members of the conservative group to detect differences of light and shade, in the way of small variations in the shades of gray paper.

A graduated series of gray papers about three inches square, which had been especially manufactured for the purpose by a scientific supply house, were placed in a large neutral gray frame, or tachistoscope (see Appendix IV, Figure 7) and arranged so that each sample could be exposed to the view of the subjects along with another standard gray for an interval of one second. Twenty shades of gray of varying degrees of difference from the standard were presented to the observers in a chance order retained uniformly throughout the test. The subjects were asked to record their judgment as to whether the compared gray was lighter or darker than the standard gray. A total of forty judgments was secured from each subject.

Scores were given on the basis of the number of right judgments made. The mean score of the radical group was 37.7 and of the conservative group 37.6 points out of a possible forty. The difference of .1 between these means is only .63 of the probable error of the difference and therefore is not significant.* From the indications of this test therefore it appears that there is little difference in the ability of the two groups to detect differences in shades of gray.

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*For statistical details of the experiments in this chapter, see Appendix III.

Weight Discrimination — Test No. 2

Comparisons were made of 20 weighted medicine containers (see Appendix IV, Figure 7), varying from 60 to 100 grams in two-gram steps. A weight of 80 grams was taken as standard. The subject was asked, on each trial, to lift first the standard weight and immediately afterward one of the other weights which was presented to him. The order in which these comparison weights were presented was the same for each individual although the sequence was originally determined by chance. The arm position, movement and manner of holding the weights was kept uniform for all the subjects.

The subject was asked to report on each trial whether the comparison was lighter or heavier than the standard weight. The score was considered to be the number of correct judgments.

The mean score of the radicals on this test was 16.2 right judgments and of the conservatives 15.4 right judgments out of a possible twenty. The difference of .8 between the means of the two groups was 3.03 times the probable error of the difference. It therefore may be regarded as a fairly significant indication of superiority on the part of the radical group. Stated mathematically, there are 98 chances in 100 that there is a real difference of the kind indicated (Garrett 9, p. 136).

Auditory Discrimination — Tests Nos. 3 and 7

As the most convenient and reliable indicator of auditory discrimination, the data obtained from the Seashore tests of musical ability (45; 46), which were given to all of the elementary psychology students as a laboratory exercise, were obtained from the instructors in charge. This body of data was available on the following special musical abilities:

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*The usual standard of significance of difference between the means of the test scores of two groups is that the difference in the means shall be approximately three times the probable error of the difference or greater. This means that there are approximately ninety-eight chances in one hundred that there is a real difference of the kind indicated. A difference of four times the P. E. of the difference brings these chances up to over 99 in 100, and therefore gives good assurance that similar tests of many other similarly selected cases would prove the existence of at least a small difference of the kind observed.

1. Rhythm
2. Pitch
3. Time
4. Intensity
5. Consonance

These tests are given through the medium of the phonograph, and involve the technique of paired comparisons. In the rhythm test, groups of rhythmic beats are sounded in twos and the subject is asked to judge whether the members of each pair are exactly alike or different in rhythm. In the test of pitch the observer is required to state whether a musically pure tone is higher or lower than a second tone sounded immediately after it. Ability to discriminate the length of time intervals, the comparative loudness of two paired notes, and the relative consonance of two musical chords is measured in the same way. The original scores on these tests are the number of correct judgments made. These are immediately transmuted into percentile rank scores.

Since the data on these musical ability tests were available for over five hundred cases, they afforded an excellent means of comparing the group results with the evidence obtained from the whole range. The coefficients of correlation indicating degree of relationship between the scores on each of the tests of musical ability, and the scores indicating degree of religious conservatism, were therefore calculated. (Table I)

TABLE I

Test No.	Name	Means (percentile rank)			Diff. P. E.	r (Coeff. of Correl.)
		Radicals	Conserv.	Difference		
3	Rhythm	72.54	65.90	6.64	1.7	.001
4	Pitch	49.6	48.40	1.21	.25	.027
5	Time sense	55.76	55.70	.06	.01	—.004
6	Consonance	56.70	55.0	1.70	.44	—.008
7	Intensity	58.30	52.90	5.6	1.40	.036

In every instance the data seem to point to the fact that there is no relation between musical ability as measured by these tests, and tendency toward religious conservatism as measured by our criterion.

Threshold of Sensation of Electric Shock Test No. 8

The object of this investigation was to find out something about the relative sensitivity to stimuli of the two groups, that is, their lower limits for recognition of stimuli, (Whipple 71, p. 198). Several students of religious psychology, including Starbuck (54) and Pratt (35, p. 182) have intimated that the mystic type of religious person is, in general, more sensitive to impression than the common run of people. On the other hand, the mental escape theory of Jung (16) would imply that the religious person would be duller and less sensitive than the average.

Due to the fact that time for experimental purposes was limited it was decided that only one measure of sensitivity could be taken. The stimulus decided upon was a pulsating type of electric current which could be accurately measured by means of a galvanometer. The current was supplied from a high-voltage transformer with a control resistance in the primary and was passed through a vacuum rectifying tube so that it could be measured by a micro-ammeter which was connected in series with the subject's body. The terminals consisted of two spring clamps which made contact with the palm side of the thumb and middle finger of the left hand. The area of contact was moistened with salt solution in order to minimize surface resistance and avoid the chance of unduly stimulating small areas of variable sensitivity.

A photograph of this apparatus is shown in Appendix IV, Figure 3. The contact clamps appear attached to the hand as in use. It should be noted that the meter is connected in series and registers actual current passing through the hand and not the applied voltage. The meter therefore gives a direct measure of the energy put into the stimulus. (Lombroso 24, Seashore 43.)

As a preliminary to this experiment the observer was first given a trial application of the electricity in order to insure familiarity with the sensation and also to overcome any possible fear on the part of the subject. He was then told to report when he could first feel the sensation and again when he ceased to feel it. The current was slowly increased until beyond the point where the sensation was first reported, and then slowly diminished until the absence of sensation was reported. During this operation both the meter and the controls were concealed from the observer.

The average of the readings of the ammeter at these two points was recorded. Five similar observations were made and the average of these was taken as the sensitivity index or threshold of current sensation of the subject.

The mean threshold of the radical group was found to be 11.7 units and of the conservative group 10.6 units.*

The difference of 1.1 units points to the conservative as being the more sensitive. This difference is only 2.06 times the probable error of the difference, however, and therefore cannot be said to be statistically significant. There are 92 chances in 100 that an extensive application of the same test would prove that a difference of this kind really exists.

III. MOTOR ABILITIES

The second phase of environmental adjustment to be considered in this report is the motor or response phase of the stimulus-response reaction. Under this heading will be considered the relative ability of the two groups to make rapid and accurate bodily movements.

It is recognized, of course, that no sharp distinction can be made between sensory interpretation and motor response. Each function implies the other and probably cannot exist without it. It is believed, however, that the chief difficulty involved in the tests of sense discrimination was that of discriminating between sensory data, while the tests described under the present heading will deal mainly with control of muscular response.

The question arises as to whether the acceptor of religious authority is superior or inferior in his stimulus-response mechanism. Is the conservative in closer and more immediate touch with his environment? Or does the emphasis on things spiritual result in neglect of things material and sensuous?

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*One unit is equal to .2 milliamperes.

Again we have nothing to say beyond what the facts indicate.

Simple Reaction Time — Test No. 9

The simple reaction time of the members of the two groups was measured by means of a Klopsteg electrical chronoscope (18). The stimulus was the audible click of the release key and the response was made by pressing a key. The subject, who sat with his back to the experimenter, was first given several practices. On each trial the word "ready" was given, followed by a variable delay of from two to three seconds after which the signal was given. Ten consecutive observations of reaction time were made and recorded in terms of thousandths of a second. The reaction time score of each individual was the average of these (Seashore 43, p. 205).

The mean reaction time of the radical group was .155 seconds, while that of the conservative group was .162 seconds. The difference of .007 seconds in favor of the radicals was only 1.6 times the probable error of the difference and therefore not significant. It does indicate, however, that there are 86 chances in 100 that further tests would prove that the radical had a quicker reaction time than the conservative.

Rate of Tapping — Test No. 10

The object of this experiment was to get at the relative abilities of the conservative and radical groups to maintain a rhythmic muscular response, which in this case was a rapid tapping with the finger (Ream 40, p. 100).

The most-used arm was placed on a board and strapped down so that movement back of the wrist joint was impossible. The number of taps made on a telegraph key during each of two consecutive one-minute periods was recorded by an electrical counter.

The mean number of taps for the two-minute interval for the radicals was found to be 539 and of the conservatives 552. The difference of 13 taps was in favor of the conservatives but, since it is only 1.05 times the probable error of the difference, it is therefore probably not significant. Mathematically stated, there are 76 chances in 100 that the typical conservative can tap faster than the typical radical.

Fatigue Tests Nos. 10A, 10B, 10C

By comparing the rate of tapping during the first minute with the second minute, it was possible to get an indication of the effect of fatigue on efficiency (Wells 69). Rapid tapping with the finger is a very tiresome operation, as a trial will prove. Both groups showed a decrease in the number of taps during the second minute. The ratio of taps during the second minute to taps during the first minute furnished an *index of fatigue.* This was found to be .99 for the radical group and .96 for the conservative group. The difference of .03 indicates less fatigue on the part of the radical group but it is only .65 times the probable error of the difference and therefore not at all significant.

Muscular Steadiness Test No. 11

Muscular steadiness was tested by having the subjects insert and withdraw a stylus a given distance into successively smaller holes in a metal plate (Whipple 71, p. 123; see also Appendix IV, Figure 1). The directions to the student were that he was to try to put the stylus down the center of the hole and not touch the edge. Positive instruction was given for half of the trials and negative instructions for the other half. Uniform position and free arm movement was required during the test. Touching the edge of the hole made electrical contact and sounded a buzzer. Ten trials were made, the score being the number of holes passed without touching.

The mean total score for the radicals was found to be 43.80 and of the conservatives 45.56. The difference of 1.74 was 1.94 times the probable error of the difference and therefore not very significant. There are 91 chances in 100 that extensive testing would prove that the conservative is steadier in this type of movement than the radical.

Test No. 11A

The same procedure was now repeated with the exception that the stylus was drawn down a narrow converging groove with a glass bottom and metal sides (Whipple 71, p. 119; see also Appendix IV, Figure 1). The stylus was inserted in the large end of the groove and drawn toward the small end, the score being the number of centimeters reached before contact was made and the buzzer sounded. Ten trials were made as before.

The average score of the radicals was 172.7 and of the conservatives was 177.7. The difference of 5.0 is 1.25 times the probable error of the difference and therefore not significant. There are 80 chances in 100 that extensive application of the same test would prove the conservative to be more steady. The indications of both of these steadiness tests, however, is that the typical conservative is slightly superior to the radical in this kind of work.

Muscle Coördination Test No. 12

The object of this experiment was to test the ability of the subjects to coördinate muscular action so as to produce complex movements. In this test the subject attempted to keep a metal stylus in contact with a metallic button set in a wooden disc which was rotated by a phonograph motor (Koerth 21; see also Appendix IV, Figure 2). In order to do this it was necessary to make the point of the stylus describe a circle ten inches in diameter at the speed of the rotating button which was one revolution per second. The apparently simple task is very difficult to perform and the movements involved are quite complex.

The score on this test was the time in seconds that the observer maintained contact between the stylus and the button during each of two consecutive minutes and also for the total of the two minutes. This time period was measured by a chronometer that operated only while an electric circuit was closed by the contact between the stylus and button.

The mean score of the radical group for the two minute period was 18.1 seconds and of the conservative group 11.1 seconds. The difference of 7.0 seconds was 3.72 times the probable error of the difference and therefore is a significant indication that the radical is superior in muscle coördination as measured by this test. Mathematically stated, there are over 99 chances in 100 that this is the case.

IV. TENDENCY TOWARD MOTOR ACTIVITY

It is entirely possible for one to be very active bodily without being very efficient in action. A certain type of person seems to be always restless and constantly in motion. This is the type that both McComas (25) and Giddings (10) thought would support religious authority most unquestioningly.

Test No. 11F

As one means of getting a measure of this tendency toward precipitancy in action, the time that each subject took to perform the twenty trials on the muscular steadiness tests, previously described, was taken. The observer was allowed to take his own time in these tests and a variation from five minutes up to eleven minutes was obtained. Some students went at the job very recklessly, seeming to trust to luck, while some were very painstaking and deliberate.

The mean time in minutes for the radical group was 8.2 and for the conservative group 6.9. The difference of 1.3 minutes was 3.1 times the probable error of the difference and is therefore fairly significant. There are 98 chances in 100 that extensive observations of the same kind would prove the typical radical to be the more deliberate.

Test No. 22C

As another measure of tendency toward precipitancy of action, regardless of the value of it, the number of errors made during the last three-fourths of the multiple reaction test (described in Chap. IV) were noted. The subjects had ample time to learn during the first quarter of the test the reactions that they were supposed to make to certain stimuli, and errors after that time were thought to be largely the result of failure to consider the results before acting.

The mean error of the radical group during this period was 15.2 and of the conservative group 18.1. The difference of 2.9 errors, while tending to corroborate the other data on motor activity, is not statistically significant as it is only 1.38 times the probable error of the difference. There are 83 chances in 100 that this apparent difference is real.

SUMMARY OF INDICATIONS IN REGARD TO DIFFERENCES IN SENSORI-MOTOR CHARACTERISTICS

Of the tests dealing with sensory efficiency only the one on weight discrimination can be regarded as significant. It shows the typical radical to be superior in judging weights. The test of threshold sensitivity to electric stimulus suggests that the typical conservative may be slightly more sensitive than the radical. There is some ground for suspicion, however, that this apparent difference may be due to suggestibility rather than sensitivity. The reason for this doubt is given under the heading of *suggestibility* in the next chapter.

Of the tests of motor ability only the one dealing with muscle coördination yielded any significant differences between the two groups. This test seemed to show that the radical is superior to the conservative in coördination of his arm movements. The simple reaction tests tend to show somewhat greater efficiency on the part of the radical. The difference is not sufficient, however, to be admitted as conclusive evidence.

Differences in fatigue in finger tapping were not large enough to be significant.

The indications in respect to tendency toward precipitancy of action seemed to indicate that the conservative is more hasty and precipitate in action than the radical. While both of the criteria on action tendency support each other, only one is reliable from a statistical point of view.

In general it may be said that the data, while not at all conclusive, suggest that the typical conservative may be

(1) slightly less keen in muscle sense
(2) somewhat less efficient in complex movements
(3) somewhat more accurate in slow arm movements
(4) somewhat more inclined toward hasty action rather than deliberation

On the whole it would appear, however, that the failure to find large differences is, perhaps, more significant than the differences observed. Apparently the observed differences in religious attitude cannot be accounted for in terms of differences in the elemental equipment of mankind.

CHAPTER III

VOLITIONAL CHARACTERISTICS OF THE RELIGIOUS CONSERVATIVE

In this chapter we shall examine an aspect of the religious personality which promises more positive results. This is the range of the *Volitional Characteristics,* that is, the ability of the individual to maintain deliberate control over his behavior, his freedom from emotional instability, his ability to resist the suggestion of others, his power of perseverance and tendency to direct his actions wilfully toward some remote goal regardless of immediate feelings of pleasure or pain.

There are many theories as to the relationship of these traits to religiosity of the traditional pattern. Most of them start with the interesting fact that a sort or uncontrolled and emotional behavior often accompanies fervent religious expression. While seldom prevalent now in so extreme a form as in the past, it is still rather common in many church meetings, revivals, and spiritualistic seances. The question arises, is there something in the volitional make-up of the orthodox person which renders him more susceptible to intense stimulation or to social suggestion, and therefore more likely to conform to the doctrines and practices of an established faith?

I. SUGGESTIBILITY OF THE RELIGIOUS CONSERVATIVE

As a means of getting at the general problem of differences in suggestibility of the radicals and conservatives in religion, five different tests of suggestibility were devised and applied. Each of these experiments aimed to get at a somewhat different phase of what is sometimes broadly called *general suggestibility.*

Printed or Impersonal Suggestion Test No. 13

In this test a picture of the Houses of Parliament from the

Thames River was exposed to the view of the subjects for thirty seconds (Woodworth 72).* (See Appendix IV, Figure 5).

The standard form was next handed to the subject and he was asked to answer the questions about the picture. Some of the questions dealt with objects really in the picture, while others *suggested* answers which accepted the presence of objects *not* in the picture. The score on suggestibility was counted as the number of answers in which the suggestion was followed. For instance, if the subject replied "yes" to the question, "Did you see the man (not present) holding the oar?", one point was added to his suggestibility score on this test.

The mean score of the radicals was 1.50 and of the conservatives was 2.13. The difference of .63 is 3.1 times the probable error of the difference and is therefore a fairly significant indication of greater suggestibility on the part of the conservatives. There are 98 chances in 100 that there is a real difference of the kind indicated.

Effect of Positive vs. Negative Instructions Tests No. 11B, 11C

As mentioned in the previous chapter, the instructions given for the steadiness tests, involving the insertion of a stylus in holes of various sizes and the guidance of a stylus down a progressively narrowing groove, were given in both positive and negative form. Negative instructions were, "Do not touch the edge," and, "This is hard to do; so watch the edge and try not to touch it." Positive instructions were, "Pass the needle right down the center of the holes (or groove). You won't find it so hard to do." (Brehm 3, Langfeld 22, Strong 56).

Negative instructions were given during the first five and the last five of the twenty trials, and positive instructions were given for the ten intermediate trials, so that practice effect and fatigue were largely compensated for.

Both groups made somewhat better scores with positive instructions. The mean score with negative instructions for the radicals was 108.5 and for the conservatives was 111.0. The difference of 2.5 points is less than its probable error and therefore signifies little definitely. With positive instructions the mean score of the radicals was 109 and of the conservatives

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*A copy of this picture is shown in Appendix IV, Fig. 6. The original was about 20 by 30 inches in dimensions.

115.4. The difference of 6.35 shows the conservative as making a greater improvement with positive instructions. This difference is 2.9 times its probable error and is therefore fairly significant. There are 97.5 chances in 100 that the true difference is greater than zero.

It will be noted that the increase in the mean with positive instructions is insignificant for the radicals, being only half a point, while there is an increase of 4.4 points for the conservatives, or about twice the average probable error of these differences.

Suggestion of Pain Test No. 14

This test is a continuation of the one used to measure sensitivity to an electrical stimulus and described in the previous chapter (see p. 24, and Appendix IV, Figure 3).

The subject was told that gradually more current would be passed through his hand and that presently it would begin to be painful. He was asked to report as soon as he felt the pain (Whipple 71, p. 198; Swift 57). Five observations were made. The mean number of units on the galvanometer at which the radicals reported pain was 2.82, while for the conservatives it was 1.90. The difference of .92 was 5.25 times its probable error and therefore quite significant. There are over 99 chances in 100 that there is a difference of the kind indicated (Garrett 9, p. 136).

This test was originally devised for the purpose of measuring the threshold of pain sensation, which it may do to some extent. Six graduate students in psychology on whom the experiment was tried reported, however, that they could observe no distinct point where the pain sensation began and that it was very difficult to distinguish the pain sensation from the shock sensation (Whipple 71, p. 198). The analysis of their experience in taking the test seemed to indicate that the chief factors determining the response were (1) expectancy of pain, and (2) fear, or desire to avoid the expected pain. The response was apparently motivated similarly to the one made by a timid person during a dental operation, or by a lazy boy when asked if he is tired of working. Since the test seemed to be quite typical of life situations, it was carried out as originally planned, except that the control rheostat was not concealed during the test and no compensating report of the cessation of sensation was obtained.

Suggestion of Increase in Electric-Shock Sensation Test No. 15

In this test the electrical apparatus described in the last chapter was again used. A small current was passed through the hand, resulting in a small but perceptible stimulation. The subject was now told that the current would be slowly increased. As soon as he could detect a distinct increase in the sensation in his hand, he was to report it. The control rheostat was visible during this operation and was now slowly moved over. The apparatus was arranged, however, so that no increase in the stimulating current accompanied this movement. The meter was, as always, not observable by the subject.

This procedure seemed to convey a very potent suggestion, as over three-fourths of the subjects reported at least once that they felt an increase in the shock sensation. Five trials were made for each subject, the score being the number of times the suggestion was accepted. The mean score of the radicals was 4.0 and of the conservatives was 4.9. The difference of .9, showing greater suggestibility on the part of the conservatives, is 4.25 times its probable error and is therefore statistically significant. There are over 99 chances in 100 that the real difference is of the kind indicated.

Suggestion of Electric Shock Sensation Test No. 16

After the data just described had been obtained, the subject was told that the experimenter wished to check the accuracy of the reports on the threshold of sensation as described in the previous chapter. The procedure was carried out in the same way, the filament of the rectifying tube being lighted, but the shocking current was turned off with a concealed switch. The experimenter casually pointed to a position on the control rheostat and said, "I think you will feel the sensation when the arm reaches here." The control was then slowly moved over while the experimenter looked at the subject with a serious and expectant mien. In nearly every case it was necessary to go past the indicated point before the suggestion was accepted. If this was necessary, the operator (and usually the subject also) manifested surprise, but the control was nevertheless slowly moved on over until the subject either reported the sensation or else the limit of the rheostat was reached, which counted for a zero score. In the latter instance an apparent repair of the apparatus was made and a fresh trial was given the subject. Five such trials were made, the score being the number of times the suggestion was accepted (Seashore 44, Whipple 71, p. 404).

The mean score for the radical group was 1.36 and for the conservative group was 3.7. The difference of 2.34 points, indicating the conservative as the more suggestible, is 8.7 times the probable error of the difference and twice as large as would be necessary to insure practical certainty of a difference of the kind indicated. It is therefore clearly significant.

Effect of Suggestibility on the Observed Threshold

The apparent greater sensitivity to a minimum electrical stimulus of the typical conservative, as described in the previous chapter, may be, after all, only another evidence of his greater suggestibility. The fact that he has been led to expect the sensation may lead him to imagine that he feels it sooner than the radical.

II. PERSEVERANCE CHARACTERISTICS OF THE RELIGIOUS CONSERVATIVE

The tests to be described under the present heading, while not radically different in purpose or procedure from the avowed suggestibility tests, are devised from a somewhat different point of view. Both kinds of tests aim to deal with the quality which may be described as self-control or self-determination. Both classes of tests attempt to get at the ability of the individual to *will* and to *act* independently of the immediate distracting influences. The chief distracting influence in the case of the suggestibility tests was supposed to be the expectancy of some other kindly-disposed person or persons, in this instance the experimenter. In these latter tests, however, the chief distracting influence is weariness, difficulty, or pain. In either instance the problem is whether the individual is affected more strongly by immediate or remote incentives. Is his motivation short or long termed?

The chief reason for the inclusion of this phase of our testing program is that it may possibly represent another aspect of the motivation of the orthodox person. In addition to the incentive to religiosity that comes from the suggestion of his priest, pastor, or church associates, there is also the motive of escape from the weariness, difficulty, and pain of a hard life on earth and, perhaps, the prospect of eternal death or hell hereafter. As we have mentioned heretofore, Jung (16) and others have held that religion is largely a means of mental escape from the unsurmountable difficulties of life. If this is true, then, there is a second force operating to break down the will of the conservative. Again the question arises as to whether the religious conservative is the type of person who will yield to influences such as these. If we knew the answer to this question, we should have made at least a beginning toward knowing why he is conservative.

Perseverance in Tapping — Test No. 10C

The ratio of the rate of tapping with the finger during the second minute as compared with the first minute of the tapping test is perhaps indicative of the ability of the person to hang on in the face of difficulty and discomfort. Any differences that may be observed in the two groups, while perhaps primarily due to differences of fatigue, may be due partly also to differences in "grit" or will power. The test, which is described in the previous chapter under the head of *fatigue,* showed only slightly greater persistence on the part of the radical.

Perseverance in Muscle Coördination Test — Test No. 11A

This test, which is described in the previous chapter, dealt primarily with ability to maintain contact between a gyrating button and a stylus held in the hand. As mentioned in the earlier description, the number of seconds during which the subject maintained contact was recorded separately for the first and second minutes of the two minute test period. The ratio of the score for the second minute to the score for the first minute should give some indication as to the perseverance of the subject. The movement involved is not especially tiring, and therefore fatigue probably had little to do with the results.

Ability to learn from practice may also have been an important factor.

The data show very little difference in the two groups. The mean ratio for the conservatives was 1.64 and for the radicals was 1.68. The difference of .04 is not significant.

Perseverance in Spite of Increasing Punishment Test No. 17

As preliminary to this test the subject was asked if he was willing to engage in a contest with the other students to determine their relative "grit" or endurance of pain. The contest consisted in attempting to endure as much of an electric shock as possible, as measured by the amount of current passed through the hand by the electrical apparatus previously described. The subject was told that the current would be slowly increased and that, while the object was to stand all of the current possible, as soon as he could stand no more he was to say *stop,* and the current would be turned off at once. He was assured that no sudden shocks would be given and that no bad after-effects would result. Five trials were made. A few of the contestants hung on so desperately that in some instances it was necessary for the experimenter to call a halt himself in order to save punishment to the stubborn subject. Other timid ones quit at the first suggestion of discomfort.

The mean total units endured by the radical group was 117.7 and of the conservative group was 77.3. The difference of 40.4 units is 5.25 times its probable error and is therefore quite significant. The typical conservative seems to be less stoical and more timid than the typical radical.

Perseverance in Order to Avoid Punishment Test No. 18

The object of this test was to compare the relative efficiency of the two groups when in a defensive situation in which immediate disaster is certain unless it is fended off by effective action. The situation which it was desired to typify was that of the man with his back against the wall and with the danger of physical injury staring him in the face, or again, that of the slave with the master's whip threatening him. How would the typical conservative compare with the typical radical in such a situation? Dr. Morton Prince (37) suggests that there are defensive and offensive types of personality. Does the religious conservative correspond to either of these types? Or is it true, as Miss Underhill (66, p. 150) suggests, that "the pull of imaginative desire, rather than the push of desperate circumstance, serves him (the spiritually-minded man) best"?

The subject had just completed the endurance test just previously described, and was now brought back to the holes and groove apparatus described in the previous chapter and used in the steadiness tests. He was told that the performance in these tests would be repeated, except that bringing the stylus in contact with the sides of the largest holes or of the widest part of the groove would result, not in sounding a buzzer, but in his receiving a shock more severe than the maximum endured in the previous endurance test. In some instances it was necessary to modify this statement in order to persuade the subject to undertake the test. He was further advised that, as he progressed into the smaller holes or the narrower part of the groove, the shock received on making contact would grow less and less, until finally it could not be felt. Thus there was a very real and immediate incentive for making as good a score as possible.

During this test the hand of the subject was connected in series with the steadiness apparatus and with the shocking apparatus previously described. It was arranged so that contact between the stylus and the holes or groove blocks completed the circuit and produced the promised shock. The strength of the shock that would be received in the largest hole was determined by the amount of current that the subject had endured in the previous endurance test, as the control was not changed. A telephone receiver was also connected in series so that the experimenter could tell by a buzzing sound when contact was made. As a means of decreasing the shock, a high resistance rheostat* was also connected in series, and the experimenter gradually increased the resistance as the smaller holes were reached (See Appendix IV, Figure 1).

The mean total score for five trials with the groove apparatus was 91.4 for the radical group and 101.0 for the conservative group. The difference of 8.6 was 4.6 times its probable error and is therefore quite significant, as there are over 99 chances in 100 that tests of larger samples would show the difference to be genuine.

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*Range from 0 to 1,000,000 ohms.

Test No. 18A

The mean total score for five trials with the holes apparatus was 22.6 for the radicals, and 29.3 for the conservatives. The difference of 6.65 is 10.4 times its probable error and is therefore very significant, being statistically the most significant difference obtained during this study. It seems to be clear that the typical conservative makes more improvement under these circumstances.

SUMMARY OF INDICATIONS IN RESPECT TO VOLITIONAL CHARACTERISTICS

There seems to be complete agreement among all five of the suggestibility tests in indicating the greater suggestibility of the conservative. It seems to be true, also, that encouragement is more helpful to the conservative, as shown by the greater improvement in his efficiency with positive instructions, but it is also shown that his efficiency is improved more than is the radical's by threat of punishment. He is more timid, or, in the common expression, has less "grit" or "nerve" than the radical. Yet in the face of danger he seems to have better control of his responses. He seems to react more positively to an immediate stimulus, as in doing what another wishes or in avoiding punishment, than does the radical, and less positively to a remote stimulus such as the desire to rank highly in the contest of shock endurance.

While the fact that the typical conservative was either not able, or else not willing, to stand as much punishment as the radical might indicate that the threat of pain was a greater incentive for him, which might account for his greater improvement under the threat of it, yet it must be remembered that the greater shock was promised and given to those who were braver in the shock endurance test.

On the whole it seems that the typical conservative has less of what is commonly spoken of as will power, or, in other words, is more influenced by the immediate situation than by the general or remote situation.

CHAPTER IV

THE INTELLECTUAL CHARACTERISTICS OF THE RELIGIOUS CONSERVATIVE

Some few attempts have been made to obtain objective evidence as to the relative intelligence of "religious" and "non-religious people," but, although good intelligence tests have been available for some time, investigators have been handicapped by lack of a reliable criterion for judging *religiosity.* We have already mentioned the study of Professor McComas (26) of the membership of the typical liberal and conservative churches in the different cultural communities. President C. C. Little (23), of the University of Michigan, has just recently reported a study of the church membership of those whose names are in "Who's Who". He finds a much larger percentage than normal of those who either favor the liberal churches, such as the Unitarian or Congregational, or else have no church preference.

Since the writer has apparently been able to distinguish between the different grades of religious conservatism with a fair degree of reliability, it is perhaps worth while to attempt an examination of the intellectual characteristics of the conservative. We have reference here to man's ability to observe the relations between facts as well as the facts themselves. In general, this is the process of conscious analysis and comparison of the elements of experience by which meaningful relationships are discovered.

Besides the mechanisms of association, ideation and abstraction, we have included the prerequisites and accessories of thought, such as memory and imagination. All this is apparently what the intelligence testers mean by "intelligence", and for practical purposes our point of view shall be the same.

While it is difficult to draw clear lines of demarcation between the various functions of the intellect, it can at least be said that the first tests included in the following program aimed to get at the preliminary processes of recall and reproductive imagination, which supply the material afterwards analyzed and associated by the higher processes. The associative and ideational processes will be dealt with in the latter part of the chapter.

I. REPRODUCTIVE IMAGINATION

Aussage Test Test No. 19

In this test a board, about two feet by three feet, having attached to it a large number of miscellaneous yet familiar objects (see Appendix IV, Figure 5) was exposed to the gaze of the subjects for 30 seconds. After a 10 second interval they were told to write down on the data sheet the names of all the objects that they could remember.

The mean number of objects remembered by the radical group was 14.60, and by the conservatives was 13.87. The difference of .73 is 2.8 times the probable error and is therefore somewhat significant. There are 97 chances in 100 that a similar selection and study of many cases would prove superiority on the part of the radical.

Memory of Objects in a Picture Test No. 20

This test is similar to the *aussage* test except that it provides an opportunity for the subjects to observe natural relationships between the objects in the picture which may serve as an aid to memory. The general procedure of the test has already been described under the head of *impersonal suggestion* in the previous chapter. The subjects were allowed to view the picture (see Appendix IV, Figure 6) for 30 seconds. They were then handed a standard blank form and asked to answer the questions on it. Certain of the questions were intended to suggest answers which were untrue and were used as a test of suggestibility, as previously described. The others, however, dealt with observation and memory of actual details of the picture, e.g., the question, "How many turrets on the main tower?" Each of this type that the subject answered correctly, or right within a defined range, counted one point on his score.

The mean score for the radical group was 4.62 and for the conservative group was 4.19. The difference of .43 is only 1.94 times its probable error and is therefore only slightly significant. There are 91 chances in 100 that the real difference is in favor of the radicals.

Test of Reconstructive Imagination Test No. 21

This test was aimed to get at memory not only of form but also of action or change and of the relations between the different forms of the same object. The test situation is believed to be similar in general to that in which one observes the performance of some rather complicated task, as, for instance, operating a calculating machine, and then attempts to reproduce it. The stages of progress must be reconstructed separately in the mind and then built upon for the second state (Whipple 71, p. 87).

The procedure in this test consisted in folding squares of paper before the student in varying ways and a varying number of times so as to produce different stages of difficulty of mental reconstruction of the operation (See Appendix IV, Figure 6). The student was asked to observe carefully how each square was folded and afterwards to draw the crease marks produced by folding. Eight different trials were given, each representing a successive stage of difficulty.

In scoring, a weighting was given to each of the eight patterns proportional to the difficulty of reproducing it, as shown by the relative number of people doing it. According to this scoring system, the mean score for the radical group was 18.7 and for the conservative group was 14.3. The difference of 4.4 is 2.32 times its probable error and therefore only somewhat significant. There are 94 chances in 100 that similar tests of a large number of similarly selected samples would prove the typical radical to be superior in this test.

II. THE ASSOCIATIVE OR IDEATIONAL PROCESSES

Ability to Associate Objects Test No. 22

In this test it was necessary for the subject to form four new perceptual associations and learn to respond to them. He was told that when he saw a certain one of four different colors exposed in the aperture of the apparatus it was to indicate that a certain particular one of the four keys below must be pressed. This, and this only, would operate the release and expose another color at the aperture, which in turn meant that a certain other key, corresponding to that color, must be pressed in order to expose another color, etc. There were four colors, which were presented in chance order, and four corresponding keys.*

While the general operation of the apparatus was illustrated and explained to the subject, he was nevertheless obliged to discover for himself, by trial and error, the colors and keys which corresponded. After this correspondence had been observed, the operator's problem was to take his cue from the color at the aperture, make the proper association, and press the corresponding key. This rotated the disc one notch and exposed the next color. In order for the subject to complete his task it was necessary to react 100 times. The score was the time in seconds necessary to do this. If the wrong key was pressed, no change of color occurred, and the time lost was equivalent to a penalty.

The score in seconds required to complete the task was 123 for the radicals and 127 for the conservatives. The difference of 4.00 seconds was only .88 times its probable error and therefore not a significant indication of any real difference between the groups.

Test No. 22A

In addition to the time required to complete the test, the number of errors made during each ten-second interval was also recorded. The tendency to keep on making errors during the latter part of this test, after corresponding colors and keys have been learned, has already been considered as evidence of tendency toward precipitancy in action. From a somewhat different point of view it might appear that the general tendency to make errors may be an indication of inability of the subject to learn to make the proper associations.

The mean total errors during the test for the radical group was 24.6 and for the conservatives was 27.7. The difference of 3.14 was only 1.14 times its probable error and therefore only very slightly significant. There are 78 chances in 100 that the real difference is in the direction indicated.

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*The apparatus (see Appendix IV, Fig. 8) used in this experiment was developed at the University of Iowa under the direction of Prof. Carl E. Seashore (12, 26, 62).

Solving Maze Problems Test No. 23

As a means of obtaining a measure of ability at problem solving that would not be highly conditioned by previous training and experience, the subjects were asked to trace a path from the outside to the inside of five different mazes of varying degrees of difficulty. These mazes were developed by Mr. R. D. Sinclair (50; see also Moore 32) and mimeographed.

The total time in seconds required to solve all five of these mazes was taken as the score. The mean time for the radical group was 292 seconds, and for the conservative group was 376 seconds. The difference of 84.0 seconds was 6.8 times its probable error, and there is a significant indication of superiority on the part of the radicals. There are more than 99 chances in 100 that this superiority would be established by testing a large number of similarly selected cases.

Ability to Follow Directions Test No. 24

The ability to follow directions implicitly has always been considered as a mark of intelligence. If these directions are written, the ability to read and understand printed language is implied, an accomplishment which is also commonly accepted as an evidence of brightness.

The particular form of directions test used was developed by Mr. R. D. Sinclair (50; see also Whipple 71, p. 485). The subject was allowed eighty seconds in which to carry out the directions given on the form. The score was considered as the number of instances in which the directions were correctly carried out. For the radical group the mean score was 15.3 and for the conservatives was 14.1. The difference of 1.2 is 1.81 times its probable error and is only slightly significant. There are 89 chances in 100 that the true difference is of the kind indicated.

Test No. 24A

Perhaps better than mere speed, as an indication of fineness of mental adjustment, is accuracy in response. The number of mistakes made in carrying out the directions in the above test is probably a good measure of accuracy of response. The mean per cent of the number of responses made that were wrong was 11.9 for the radicals and 16.8 for the conservatives. The difference of 5.9 is 2.78 times its probable error and is therefore a fairly significant indication of superiority on the part of the radicals. There are 97 chances in 100 that the real difference is of the kind indicated.

Test of Rational Judgment Tests No. 25 and 26

This test was developed and standardized at the University of Iowa by Prof. E. D. Starbuck. It is of the multiple choice type. The subject is asked to choose the best and the worst of four hypothetical responses to a situation that is stated in the first part of each test item.*

The first seventeen items in the test deal with ethical situations while the last thirteen items are aimed to test the ability of the subject to deal with abstract ideas of virtues. It is a common notion that religious people, in general, have a keener sense of moral values and a better appreciation of ethical behavior than non-religious people. At least it might be supposed that religious training would tend to develop clean-cut standards of right and wrong. Also it might be expected that such training and habits of thinking would give the church member more facility in thinking in terms of the abstract virtues that are dealt with in the latter part of the test.

The mean score in terms of right responses for the ethical discriminations part of the test was 25.8 for the radicals and 24.7 for the conservatives. The difference of 1.1 is 2.7 times its probable error and is therefore a fairly significant indication of superiority on the part of the typical radical. There are 96 chances in 100 that similar tests of a large number of similarly selected cases would show this difference to be real.

The mean score on the test of the understanding of abstract terms, or virtues, was 16.1 for the radicals and 15.8 for the conservatives. The difference of .3 is only .57 times its probable error and therefore is of no significance.

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*A copy of the form of this test is included on pages 30-33 of the original study. The responses accepted as correct are those indicated by the consensus of opinion of several graduate students.

University Grades Test No. 27

The ability of an individual to obtain a good grade from his instructor is evidence of his intellectual ability and also, perhaps, of his social adaptability. It may also be indicative of at least apparent conformity to certain established standards of attitude and conduct.

The mean number of university grade points obtained during the first semester of the school year of 1925-26 was 2.48 for the forty-four members of the radical group on which this information was available, and 2.14 for forty-six members of the conservative group. The difference of .34 points is 2.95 times its probable error and is therefore fairly significant. There are approximately 97.8 chances in 100 that extensive applications of the same tests would prove a difference of the kind indicated.

Since the grade points of most of the cases (485) were available, it was possible to determine the correlation between these grades and the degree of religious conservatism. This coefficient was found to be —.149±.030.

Test of High School Content Test No. 28

The ability of an individual to absorb and retain information is perhaps a fairly reliable indicator of the quality of a certain part of his mental mechanism. This ability seems to be very reliably measured by the Iowa High School Content Examination which covers all of the principal high school subjects and is given each year to all the freshmen entering the university (Stoddard 55).

The mean percentile score for the thirty-six members of the radical group on which the data of this test were available was 69.4, and for thirty-four members of the conservative group it was 42.4. The difference of 27 points is 6.1 times its probable error and therefore is a significant indication of superiority on the part of the radicals.

The results of the High School Content Examination were available on 485 out of the total number of cases. The coefficient of correlation between these scores and the scores indicating degree of religious conservatism was —.379±.026.

Indications of the General Intelligence Tests — Test No. 29

The combined, or composite, scores made by the subjects on the Thorndike Intelligence Test, Part I (55, 61), and on the Iowa Comprehension Test (55) were available for 461 of the cases.

The mean percentile score of the thirty-six members of the radical group, on which these scores were available, was 72.8, and for thirty-four members of the conservative group was 48.1. The difference of 28.3 was 6.14 times the probable error of the difference and is therefore a significant indication of superiority on the part of the radicals.

The coefficient of correlation between these intelligence test scores and the scores indicating degree of religious conservatism was calculated for the 461 cases on which these data were available. The coefficient was found to be $-.361 \pm .026$.

SUMMARY OF CHAPTER ON INTELLECTUAL CHARACTERISTICS

It is worthy of note that in all the tests of intellectual ability the typical conservative always made the poorer score. The facts (1) that in most of the tests the differences are large enough practically to guarantee that similar tests of a large number of similarly selected sample groups would show differences of the same kind, and (2) that the different bits of evidence are mutually supporting, would seem to constitute fairly convincing evidence that the students who accept the conservative statements in the criterion are, in general, relatively inferior in intellectual ability.

CHAPTER V

EVIDENCE FURNISHED BY THE SUBJECTS THEMSELVES

The facts that have been reported thus far, except regarding the initial classification of cases, have been obtained entirely through objective methods of investigation. Reports of the introspections or personal reactions of the subjects during the laboratory tests were not taken account of except as purely behavioristic evidence. There is no doubt, however, that the very intimate information that people have about themselves is extremely useful in investigations of personality, provided it can be truthfully and accurately transcribed from the mind of the subject to the printed page. Some of the more definite facts concerning the individual, such as age, sex, family, and church, are usually reported quite reliably. Since these data are generally regarded as fundamental in explaining the sources and setting of the lives of people, they may, perhaps, be conditioning factors in the make-up of the conservatives and the radicals and, therefore, should be taken account of in this study.

Since this information had been asked for in the original test, it was available for practically all the cases. In order to take advantage of the increased reliability obtained from using a greater number of cases, it was considered desirable in some instances also to use the data from the whole group of 542 students, as well as from the two smaller groups of extreme conservatives and extreme radicals. For this purpose the distribution was split at the median and data compiled separately for the radical and the conservative halves of the whole range. Percentages given are in terms of the nearest whole number.

I. PERSONAL DATA

1. Age

TABLE II

Mean Ages

	Extreme Groups		Complete Distribution	
	Rad.	Con.	Rad. Half	Con. Half
Men	18.5	19.3	18.9	19.2
Women	19.1	19.9	19.1	19.8
Both	18.9	19.7	19.4	19.6

It seems evident from Table II that within the university student body, the typical conservative is older than the typical radical, while the women are generally older than the men. The records of the registrar show the latter condition to be typical of the Liberal Arts College in general. While the preponderance of women among the conservatives may help, yet it only partially explains the greater age of the latter.

2. Sex

TABLE III

Percentages

	Extreme Groups		Complete Distribution		Total
	Rad.	Con.	Rad. Half	Con. Half	
Men	45	28	52	34	43
Women	55	72	48	66	57

The ratio of women to men is somewhat larger than in the Liberal Arts College in general. The indicated greater conservatism of the women seems to be in line with other findings.

3. Racial Type

The coefficient of correlation between the sum of the scores of items 1, 2, and 3 in the rating test (see Appendix I), indicating degree of pigmentization, and the religious conservatism scores was calculated and found to be .021. Evidently there is no relationship between conservatism and darkness of skin and hair.

4. Healthfulness

The scores on item number 4 in the rating test, reporting degree of healthfulness, were correlated with the conservatism scores and found to be —.121±.027.

II. EMOTIONAL QUALITIES

It is a very difficult matter to obtain direct objective evidence as to the emotional nature of an individual. Performance in the tests of suggestibility and perseverance is perhaps emotionally motivated, but it is, nevertheless, only indirect evidence as to the nature of the emotive consciousness. It was hoped that self-ratings on the groups of items selected to reveal the following qualities might prove of value in this regard.

1. Optimism—Pessimism

Self-rating items numbered 34, 56,79, 99, 112 and 113 in the test (Appendix I) were chosen to constitute a possible criterion of optimism. The obtained coefficient of reliability was .56.* (Otis 33, p. 263). The coefficient of correlation between the optimism-pessimism scores and the religious conservatism scores was —.262±.028. When the formula for correction of attenuation due to the unreliability of the measures* (Otis 33, p. 229) was applied, the coefficient was changed to —.366. Apparently the conservative is somewhat inclined toward pessimism.

2. Emotional Stability

Self-rating items numbered 7, 13, and 15 were chosen as a criterion of emotional stability. The obtained coefficient of reliability was very low, .33. The coefficient of correlation with religious conservatism was .032±.029. There is no relationship apparent between emotional stability, as measured by these ratings, and religious conservatism.

3. Introversion-Extroversion

Items in the rating test numbered 19, 24, 25, 29 and 42 were chosen as a criterion of tendency toward introversion vs. ex-

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*The sum of the scores of one chance-half of the items was correlated against that of the other half, and Brown's formula $r_{2,2} = \frac{2r_{1,1}}{1+r_{1,1}}$ was applied.

*$rXY = \frac{rxy}{\sqrt{(rxx)\ (ryy)}}$

rXY = r corrected for attenuation
rxy = r (uncorrected)
rxx & ryy = coefficients of reliability

troversion (Pratt 33, p. 263). The obtained coefficient of reliability was .65. The coefficient of correlation between introversion, as measured by these items, and religious conservatism was found to be —.146±.029. When corrected for attenuation, this coefficient became —.19. There is apparently a slight tendency for the conservative to be extrovertive, although the tendency is not very marked.

III. SOCIAL ATTITUDES

The following groups of items were considered to be indicative of the variously named social attitudes that are typical of the subjects.

Attitude	Items in Test
Conscientiousness	18, 26, 43, 44, 74
Kindliness	23, 27, 38, 80, 115
Fastidiousness	5, 46, 47, 49
Pugnacity	14, 15, 83, 84
Aggressiveness	57, 58, 59, 114
Radicalism (general and political)	9, 31, 48
Inferiority Complex	16, 17, 53, 88

The scores on these items were combined into numerical measures of the several traits, the internal reliabilities calculated by the chance-half formula, and the relationship of each trait was estimated. These figures are given in the following table:

TABLE IV

Attitude	r of Reliability	r with Conservatism	r corr. for Attenuation
Conscientiousness	.51	.166±.028	.244
Kindliness	.56	.201±.028	.283
Fastidiousness	.44	.171±.028	.27
Pugnacity	.39	.002	
Aggressiveness	.37	.002	
Radicalism	.37	—.285	—.497
Inferiority Complex	.43	.120	.19

The coefficients of reliability are too low to allow any confident statement of relationship.

IV. THE HOME

The influence of home life in the formation of character has long been considered of supreme importance. The relation of the child to the home is intimate, vital, and constant and affects the child chiefly during his most sensitive and plastic years. It will perhaps be worth while to find what the domestic background of the typical conservative has been as compared with the radical.

1. Country vs. Town Nurture

TABLE V

Percentages

	Extreme Groups		Complete Distribution	
	Rad.	Con.	Rad. Half	Con. Half
Brought up in country	24	27	21	26
Brought up in town	76	73	79	74

2. Father's Occupation

TABLE VI

Percentages

	Extreme Groups		Complete Distribution	
	Rad.	Con.	Rad. Half	Con. Half
Farmer	29	31	27	30
Business Man	35	28	24	29
Professional	15	10	15	14
Laborer	8	13	10	11
Salesman	6	8	4	6
Public service	0	0	1	1
Clerical	0	0	2	0
None given	6	10	15	9

There is evidently not much difference between the radicals and conservatives in respect to the fathers' occupations.

3. Nationality of Parents

TABLE VII

Percentages

	Extreme Groups		Complete Distribution	
	Rad.	Con.	Rad. Half	Con. Half
Pure American	48	39	41	39
American-English	6	4	5	5
American-Scandinavian	2	0	1	1
American-Nordic (German-Dutch-French)	0	3	1	2
Mediterranean	0	0	0	0
Negro	0	0	1	1
French	0	0	0	0
English	10	15	14	14
German	0	3	8	4
Netherlands	0	3	0	2
Scandinavian	4	5	2	4
Hybrid	29	29	27	29

There is evidently not much difference between the conservatives and radicals in respect to nationality of parents.

4. Number of Children in Family

TABLE VIII

Percentages

No. in Family	Extreme Groups Radicals	 Conservatives
1	17	14
2	28	22
3	17	16
4	17	22
5	13	11
6	2	3
7	2	4
8	0	1
9	0	3
10	4	4
Average	3.2	3.7

It will be noted that the typical conservative comes from a somewhat larger family.

5. Position in Family

TABLE IX

Percentages

Pos. in Family	Radicals	Conservatives
1st	54	40
2nd	19	25
3rd	10	19
4th	4	8
5th	8	1
6th	0	1
7th	2	3
8th	2	1
9th	0	1
10th (or more)	0	0
Average	2.08	2.18

6. Sympathy with Parents

Items in the rating test numbered 35, 36, 101, 102, and 113 were selected as possibly indicative of sympathy or *rapport* between the subject and his parents. Intimate companionship between parents and children has generally been considered as conducive to good moral and religious standards.

The coefficient of reliability obtained was .55. The coefficient of correlation with religious conservatism was .204±.028, which, when corrected for attenuation, became .284. Evidently the conservatives are somewhat more sympathetic toward their parents.

7. Home Discipline

There has always been some question as to whether lax or harsh discipline is more productive of good moral and religious standards. Items in the rating test numbered 45, 72, 73, and 81 were selected as a measure of the severity of discipline in the home. The obtained coefficient of reliability was .62. The coefficient of correlation with the religious conservatism scores was .057±.029. Evidently severity of home discipline seems to have little to do with religious conservatism.

V. THE RELIGIOUS BACKGROUND OF THE CONSERVATIVES AND RADICALS

An understanding of the comparative religious training, experiences, activity, and church membership of the two types may perhaps contribute to an understanding of why people are conservative or radical in religion, or, at least, may help to explain the relationship between the early religious environment and later religious attitudes.

1. Religious Training

Items in the self-rating test numbered 89, 90, 92, 93, 94, 95, 96, and 118 were chosen to make up a criterion of the amount of religious training that the subject has been given during his early life. The obtained coefficient of reliability of this group of items was .86. The coefficient of correlation with the religious conservatism scores was .269±.026. When corrected for attenuation this value became .306.

2. Religious Attitudes of Parents

The ratings of the religious interests of the father and mother are taken from items number 95 and 96 respectively. The coefficient indicating relation between the religious conservatism of the child and the religious tendency of his father is .151±.029, while this same value for the mother is .320±.027.

Evidently there is a tendency for the children of church-going parents to be conservative. Apparently the mother is much more influential in this respect than the father.

3. Religious Activity

Items numbered 77, 86, 91, 97, and 101 in the rating test were selected as a measure of the amount of religious activity of the subjects at the time the ratings were made. The coefficient of reliability of this group of items was .72. The obtained coefficient of correlation with religious conservatism was .528±.022, which, when corrected for attenuation, became .65. Evidently religious activity and conservatism are quite closely related.

4. Mystical Experience

Items in the rating test numbered 39, 75, 84, 104, 105, 106, and 107 were selected as being probably indicative of a tendency toward mysticism, or of having a sense of the divine presence or influence. The obtained coefficient of reliability of this group was .93. The coefficient of correlation with religious conservatism was .630±.018. When this value was corrected for attenuation, it became .68. Evidently the typical religious conservative is either very much inclined toward having mystic experiences, or else it may be he has made himself believe that he has had them.

5. Conversion Experience

Tables X and XI present the results obtained by tabulating the answers given to the questions at the end of the rating test in regard to whether the subject had been converted and the age of conversion.

TABLE X

Percentages

	Extreme Groups		Complete Distribution			
	Rad.	Con.	Rad. Half		Con. Half	
			Men	Women	Men	Women
Per cent converted	20	57	21	26	29	33

6. Age of Conversion

TABLE XI

Percentages

	Extreme Groups		Complete Distribution			
	Rad.	Con.	Rad. Half		Con. Half	
Ages			Men	Women	Men	Women
10	0	20	13	17	17	16
11	11	10	3	6	0	8
12	0	5	23	11	9	20
13	11	0	0	0	9	4
14	22	15	16	20	9	10
15	33	20	10	11	13	6
16	11	20	13	6	13	12
17	0	0	0	11	0	4
18	0	5	0	3	0	4
19	11	0	3	11	0	2
20	0	5	6	0	4	2
No data	0	0	13	11	26	12
Mean age of conversion	14.5	14	13.8	15.2	13.6	13.4

From these data it seems that the conversion experience is still rather common among young people. On the whole the mean age of conversion is not far from that observed by Starbuck (53) in his study of conversion. The difference (if significant) seems to show that the conservatives especially are converted somewhat younger than Professor Starbuck found.

7. Church Membership

The following table gives the comparative percentages of radicals and conservatives who are members of the various churches.

TABLE XII

Percentages

Church	Complete Distribution Radical Half	 Conservative Half
Catholic	4	23
Methodist	27	28
Presbyterian	18	14
Congregational	10	7
Episcopalian	3	2
Baptist	4	2
Unitarian	3	0
Christian Science	2	2
Others	9	12
None	9	0
No data	12	9

The preponderance of Catholics in the conservative test group seems to be typical also of the conservative half of the distribution. The reliability of the criterion in selecting those who accept religious authority is shown by the fact that nearly 100 per cent of the constituency of the conservative half of the distribution are church members.

8. Belief in Literalism vs. Symbolism of Church Teaching

It has sometimes been suggested that the radicals, generally, believe that the churches stand for a literal interpretation of the Bible, while the adherents of the church accept it in a more symbolic sense. Items in the test numbered 61 and 62 were taken as evidence of this belief. The coefficient of reliability of these items was found to be .48. The coefficient of correlation with the religious conservatism scores was .228±.028, which value became .346 when corrected for attenuation. Evidently the conservative is more inclined to believe in the literalism of the teachings of the church.

SUMMARY OF CHAPTER

From the data it appears that the women are more inclined toward conservatism than are the men. The typical religious conservative is somewhat older and perhaps less healthful. He is inclined toward pessimism and a feeling of inferiority; yet apparently he leans toward extroversion rather than introversion. As regards his social attitudes, he rates himself as being more conscientious, more kindly, more fastidious, but shows no difference as regards pugnacity or aggressiveness. Conservatism in religion seems to correspond to some extent with conservatism in politics.

As regards the nationality, occupation, and residence of parents, there seems to be little difference in the two types. The conservative seems to come from a somewhat larger family and is somewhat more in sympathetic relationship with his parents. As regards the severity of discipline in the home no difference was discovered. Religious training in childhood is evidently conducive to later religious conservatism, although not in any large degree. The considerable importance of the mother's influence in determining religious attitude seems to be indicated. The conservative is apparently much inclined toward activity in the church and also is apt to have had such experiences as conversion and a sense of the divine presence. There are no signicant differences in church membership as between various denominations, except that 85 per cent of the Catholics are in the conservative half of the distribution.

It should be noted that, in most instances, the differences are not large, and it would be unwise, therefore, to attach too much importance to them.

CHAPTER VI

REVIEW OF THE FINDINGS

I. INFLUENCE OF FACTORS OTHER THAN CONSERVATISM

Before drawing any final conclusions in regard to the indications of this study, it will perhaps be advisable to consider some of the factors, other than the obvious difference in religious attitude, that might tend to differentiate the conservatives in religion from the radicals.

Church Membership

As was stated in Chapter two, there were twenty-two members, or 44 per cent, of the conservative group who were adherents of the Roman Catholic Church, while none of the radicals were of this affiliation. The members of the Protestant faiths were pretty evenly divided among the various denominations and also between the radical and conservative groups. Because of the marked tendency of the Catholics to concentrate in the conservative group, it might be suspected that adherence to that faith would be found to be an extraneous factor which was perhaps placing certain people among the conservatives who were characteristically different from the Protestant members of that group. If this were the case, it might be suspected also that the observed differences between the entire conservative group and the radical group might either be smaller or larger as a result.

In order to discover any possible effect of this kind, the mean scores on several of the tests were calculated separately for the Catholic members of the conservative group (Appendix III). No significant variations of the mean scores of the Catholics from the means of the conservatives, as a whole, were observed, except in the tests of musical ability, in which the Catholics were somewhat superior. This difference might not be representative of Catholic conservatives in general, however, since there are not enough cases involved to prove that the difference is typical.

Sex Differences

Since there were 36 women to 14 men in the conservative group, while there were 28 women to 23 men in the radical group, it seems evident that there is some tendency for the women to predominate, especially in the conservative group. The ratio of 64 women to 37 men in the membership of the two groups is larger than the ratio of 57 women to 43 men in the whole distribution.

Since half of the males and half of the females in each group would constitute a complete mixture of the sexes, it is apparent that in order to balance the sex factor, there should be 32 women and 18.5 men in each group. The 14 men in the conservative group amount to 76 per cent of the number needed to balance the group, while the 28 women in the radical group represent 87.5 per cent of a mixture in that group. The average mixture of the sexes in the two groups is therefore 82 per cent perfect, or, in other words, men and women are 18 per cent separated into the radical and conservative groups. Any differences in the sexes will therefore appear at 18 per cent of their real value in the differences between the radical and conservative groups. In order to account, therefore, for observed differences between the religious groups entirely in terms of sex differences, it would be necessary for the latter to be approximately five and one-half times as large as the former.

As a means of obtaining an indication as to the importance of the sex factor in the data obtained regarding the religious groups, the mean scores of all the men of the two groups were compared with the means of all the women on several of the tests (Appendix III). It is evident from the data that the female group has, in general, the same trend of difference as the conservative group. A part of this trend is to be expected because of the 18 per cent excess of females in the conservative group. In consideration of this fact it seems likely that, while the sex factor is somewhat apparent in several of the tests, it is not of much importance, except in test number 17 of shock endurance and, perhaps, in test number 12 of muscle coördination. In both of these tests the trend of the females is the same as that of the conservatives, although about one and one-half times greater.

As a means of isolating as nearly as possible the factor of sex in these two tests, the difference between the mean scores of the men and of the women was added to the score of every woman for both tests, and the religious groups were again compared.

On test number 17 of shock endurance the mean of the revised scores for the radical group was found to be 151.1, while the mean score of the conservative group was 119.1. The difference of 33 is 3.9 times its probable error and, while it is smaller than the other difference (5.7 P. E.), it still points to the radicals as having the more endurance.

On test number 14 of muscle coördination the new mean for the radical group was found to be 246 while that of the conservative group was 194.1. The difference of 51.9 is 2.78 times its probable error and also points to the radical as having the better muscle control.

The fact is perhaps worthy of attention that, while the radicals excelled the conservatives to the extent of 2.95 probable errors in the university grades, the women, who are predominant in the conservative group, excel the men in grade points by 1.17 probable errors. This is the only instance in which the trend of the women is at variance with the trend of the conservative group.

In order to compensate for sex difference in this instance it was necessary to subtract the difference between the means of the sexes from the scores of all the women. This resulted in increasing the apparent superiority of the radicals in regard to grade points from 2.95 to 5.90 probable errors. It will be noted that this difference is similar to that between the mean intelligence test scores of the two groups, which amount to 6.40 probable errors. These data probably also help to explain the low negative correlation (—.15) between grades and conservatism as contrasted with the larger negative correlation between intelligence and conservatism (—.36). Evidently the women are getting better grades in proportion to their intellectual ability.

II. SUMMARY OF SIGNIFICANT FINDINGS

If no favoritism in test procedure has been shown to either of the two groups studied, then large and statistically significant differences in mean scores on any test may be regarded as meaningful.

On the other hand failure to find a difference is not proof that there is no difference. It may be true either that there is really no difference, or that the tests have failed to distinguish the difference which really exists. This failure may be due to their unreliability or to an improper setting.

In table XIII are listed the tests in which differences of approximately three times the probable error of the difference, or greater, have been observed. The trend of difference of the conservatives as compared with radicals is indicated, as well as the number of times the difference is greater than the probable error of the difference.

TABLE XIII

Test No.	Description	Trend of Conservatives	Diff. P. E.
2	Weight discrimination	Poorer	3.0
12	Muscle coördination	Poorer	3.7
11F	Speed in steadiness test	Faster	3.1
11C	Positive instructions	Improve	2.9
13	Suggestion of objects in picture	Accept	3.1
14	Suggestion of pain	Accept	5.3
16	Suggestion of electric shock	Accept	8.7
15	Suggestion of increase in shock	Accept	4.3
17	Contest of enduring pain of electric shock	Poorer	5.7
18	Threat of punishment in steadiness tests: grooves	Improve	4.6
18A	holes	Improve	10.4
23	Running mazes	Poorer	6.8
24A	Following written directions	Poorer	2.8
25	Moral judgments	Poorer	2.7
27	University grade points	Poorer	3.0
28	High school content examination	Poorer	6.1
29	Intelligence test scores	Poorer	6.4

As regards the lower or more elementary processes of stimulus and response no large differences were observed. It would seem that the two types are not so very unlike with respect to the sensori-motor mechanism.

Five tests of suggestibility all seem to point to the typical conservative as being more suspectible to influence and guidance by others. There are also significant data indicating that the conservatives, as a whole, are less willing to endure pain and yet are stimulated to greater effort and efficiency in motor response by the threat of pain.

As regards the cognitive processes, the evidence all shows that the typical religious conservative is at a disadvantage. This fact seems to be established, not only by the data obtained regarding the extreme groups, but also by the negative correlation of .36 between indicated conservatism and the intelligence test scores for 461 persons. Lack of intelligence on the part of the conservatives is borne out by the evidence obtained from a similar group during 1925. The coefficient of correlation between conservatism and intelligence in this instance was —.29. The fact that this value is lower than that observed for the 1926 group is largely due to the smaller reliability of the measure of conservatism.

Another significant fact in this regard is that Mr. R. D. Sinclair (50) found a negative correlation of .266 between reported sense of divine presence* and intelligence scores of about five hundred members of the 1926 group. It seems worthy of note, however, that these people, who confess having experienced the divine influence, are relatively more intelligent than the conservatives in religion, whose negative correlation with intelligence is .36. A large part of the similarity in the correlations between conservatism and intelligence, and between mysticism and intelligence, is probably explained by the large factor of each that they have in common, as shown by the coefficient of correlation between conservatism and mysticism of .635. When the method of partial correlations is applied, so that the factor of conservatism in the mysticism range is held constant, the correlation between mysticism and intelligence falls to —.044. Evidently there is little or no relation between ratings of mystical tendency and intelligence test scores if the factor of conservatism in religion is eliminated. On the other hand, the removal of the factor of mysticism from the conservatism range still leaves a negative correlation of .256. Comparative lack of intelligence seems, therefore, to be primarily a characteristic of the pure type of conservative.

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*Measured by items number 39, 75, 84, 104, 105, 106, and 107 in the rating test (See Appendix I).

One possible point of view from which the data, as a whole, may be regarded is that of the difference in tendency of the two groups to react to immediate stimuli rather than to the general or more remote situation. It will be noted that the small difference observed in respect to the behavior of the sensori-motor equipment seemed to show that the typical conservative is less accurate in adjustment and yet is more inclined toward impulsiveness or haste in action. This might suggest that he is more inclined to respond to the initial urge toward action rather than deliberately to plan and direct his responses. In the suggestibility tests again it is the immediate situation, in the way of apparent expectancy on the part of the experimenter, to which the conservatives, as a class, seemed to respond much more quickly than did the radicals. In the contest in enduring an electric shock, the unpleasantness of the immediate situation seemed to control the nature of the response more than did the rather distant objective of ranking well in the group. Under threat of immediate punishment for inefficiency in the steadiness tests the conservatives made very much greater improvement. In running mazes, following directions, and even in working through an intelligence test, may it not be possible that, if the incentive to make a good record is relatively less influential than the unpleasantness of the task, the intellectual inferiority of the conservatives is, perhaps, partially explained?

In conclusion, it is perhaps worth while to remember that the findings of this study do not apply to all people who are conservative in religion. The data are known to be representative only of students at the University of Iowa of about the same age and state of educational advancement, and with about the same nurture and religious background as those compared in this study. Perhaps, in a more or less hypothetical way, the findings may, in general, be assumed to be typical of sophomore and junior college students of the present day.

It is entirely possible that, with groups of people of different age and up-bringing, and with a different social and cultural background, the differences observed in this study might disappear or even be reversed.

BIBLIOGRAPHY

1. Bagley, W. C., *On the correlation of mental and motor ability in school children,* Am. J. of Psychol., *12,* 1901, pp. 193-205.
2. Baldwin, J. M., *Dictionary of Philosophy and Psychology, 2,* 1902, pp. 417-20.
3. Brehm, Marion, *Effect on motor control of negative instructions in the case of stutterers.* Master's thesis, (unpublished), University of Iowa, 1924.
4. Coe, Geo. A., *The Spiritual Life,* 1900.
5. Coe, Geo. A., *The Psychology of Religion,* 1916.
6. Dresser, H. W., *Psychology in Theory and Application,* 1924.
7. Dresslar, F. B., *Some influences affecting the rate of voluntary movement,* Am. J. of Psychol., D, 1892, pp. 514-27.
8. Freud, Sigmund, *Psychopathology of Ordinary Life,* 1914, pp. 277-388.
9. Garrett, H. E., *Statistics in Psychology and Education,* 1926.
10. Giddings, F. H., *Distribution of the population of the United States into psychological types,* Psychol. Review, *8,* 1901, pp. 337-350.
11. Gilbert, J. A., *Researches on the mental and physical development of school children,* Yale Studies in Psychol., *2,* 1894, pp. 40-100, also Iowa Studies in Psychology, *1,* 1897, pp. 1-39.
12. Hansen, C. F., *Serial reaction: A basic measure of motor capacity,* Iowa Studies in Psychol., *8,* 1920, pp. 320-380.
13. James, Wm., *Pragmatism,* 1912, pp. 1-39.
14. James, Wm., *Principles of Psychology,* 1890.
15. Jennings, H. S., *Behavior of the Lower Organism,* 1906, Chap. 21.
16. Jung, C. G., *Psychological Types,* 1923.
17. Kelley, T. L., *Statistical Method,* 1923.
18. Klopsteg, Paul E., *A new method of measuring reaction time,* J. Exper. *Psychol., 2,* 1917, pp. 253-254.
19. Knight, F. B., *Pitfalls in rating schemes,* J. of Educ. Psychol., *13,* 1926, pp. 204-13.
20. Knight, Rachel, *The Founder of Quakerism,* 1922, pp. 271-274.
21. Koeeth, Wilhelmine, *A pursuit apparatus eye-hand coordination,* Iowa Studies in Psychol., *8,* 1920, pp. 288-292.
22. Langfield, H. S., *Voluntary movement under positive and negative instruction,* Psychol. Rev., *20,* 1913, pp. 459-478.
23. Little, C. C., *The religion of yesterday,* 1926.
24. Lombroso, C., *The sensibility of women,* Mind, *1,* 1892, p. 582.
25. McComas, H. C., *The Psychology of the Religious Sects,* 1912.
26. McComas, H. C., *Apparatus for recording continuous discrimination reactions,* J. Exper. Psychol., *2,* 1917.
27. McDougall, Wm., *Outline of Psychology,* 1923.
28. Malapert, P., *Les Elements du Caractère,* 1897, Paris.
29. May, M. A. and Hartshorne, Hugh, *Objective Methods of measuring character,* Pedagogical Seminary, *32,* 1925, pp. 45-67.
30. Mendenhall, G. N., *An experiment in character rating,* Doctor's thesis, University of Iowa, 1922.
31. Monroe, Paul, *Cyclopedia of Education, 5,* 1913, pp. 111-112.
32. Moore, Thomas, *Labyrinths,* Encyclopedia Brittanica, 11th Ed., *16,* pp. 32-34.
33. Otis, A. S., *Statistical Method in Education,* 1925.
34. Pratt, J. B., *Psychology of Religious Belief,* 1912.
35. Pratt, J. B., *The Religious Consciousness,* 1920.

36. Pratt, J. B., *Types of religious belief*, Amer. J. of Relig. Psychol., *2*, pp. 76-96.
37. Prince, Morton, *The Unconscious*, 1914.
38. Pym, T. W., *Psychology and the Christian Life*, 1922.
39. Rand, Benjamin, *Classical Psychologists*, 1912, pp. 43-83.
40. Ream, M. J., *The tapping test: a measure of motility*, Iowa Studies in Psychol., *8*, 1919, pp. 293-319.
41. Ross, E. A., *Social Control*, 1922, pp. 368-80.
42. Rugg, H. O., *Is the rating of human character practicable?* J. Educ. Psychol., *12*, 1921-22; pp. 425-438, 485-501; *13*, pp. 30-42, 81-93.
43. Seashore, C. E., *Elementary Experiments in Psychology*, 1925.
44. Seashore, C. E., *Measurements of illusion and hallucination in normal life*, Ped. Sem., *4*, 1896, pp. 176-220.
45. Seashore, C. E., *The Psychology of Musical Talent*, 1919, p. 228.
46. Seashore, C. E., *Manual of instructions and interpretation for measures of musical talent*, Musical Quarterly, Jan., 1915.
47. Scott, W. D., *The Rating Scale*, Psychol. Bulletin, *15*, 1918, pp. 203-206.
48. Scott, W. D., *Personal differences in suggestibility*, Psychol. Rev., *17*, 1910, pp. 147-54.
49. Shuttleworth, F. K., *A new method of measuring character*, School and Society, *19*, 1924, pp. 678-682.
50. Sinclair, R. D., *A comparative study of those who report the experience of the divine presence and of those who do not.* Universtiy of Iowa Studies in Character, Vol. II, No. 3, 1930.
51. Small, M. H., *The suggestibility of children*, Ped. Sem., *4*, 1896, pp. 176-220.
52. Starbuck, E. D., *Some fundamentals of character education*, School and Society, *20*, 1924.
53. Starbuck, E. D., *Psychology of Religion*, 1899.
54. Starbuck, E. D., *The intimate senses as sources of wisdom*, J. of Religion, *1*, 1921, pp. 129-145.
55. Stoddard, G. D., *Iowa placement examinations*, University of Iowa Studies in Education, Vol. 3, No. 2, 1925.
56. Strong, E. K., *Effect of suggestibility on muscular activity*, Psychol. Rev., *17*, 1910, pp. 279-93.
57. Swift, E., *Sensibility to pain*, Amer. J. of Psychol., *11*, 1900, pp. 312-317.
58. Thompson, H. B., *The Mental Traits of Sex*, Chicago, 1903, p. 188.
59. Thompson, H. B., *Psychological Norms in Men and Women*, 1903, pp. 172-173.
60. Thorndike, E. L., *A constant error in psychological ratings*, J. of Applied Psychol., *4*, 1920, pp. 25-29.
61. Thorndike, E. L., *Measurement of intelligence: the present status*, Psychol. Rev., *21*, 1924, pp. 219-252.
62. Titchener, E. B., *Experimental Psychology*, 1905.
63. Todd, J. W., *Reaction to multiple stimuli*, Arch. of Psychol., 1912, No. 25.
64. Travis, Lee E., *Suggestibility and negativism as measured by auditory threshold during reverie*, J. of Abnor. Psychol., *18*, 1924, pp. 350-68.
65. Travis, Roland C., *The diagnosis of character types by visual and auditory thresholds*, Psychol. Monog., Iowa Studies in Psychol., *10*, 1924, pp. 18-36.
66. Underhill, Evelyn, *The Life of the Spirit*, 1922.
67. Watson, J. B., *Psychology from the Standpoint of a Behaviorist*, 1919.
68. Webb, Edward, *Character and intelligence*, British J. of Psychol., 1915, Monograph supplement, No. 1, p. 99.
69. Wells, F. L., *A neglected measure of fatigue*, Am. J. of Psychol., *19*, 1908, pp. 345-358.
70. Wells, F. L., *Sex differences in the tapping test*, Am. J. of Psychol., *20*, 1909, pp. 353-363.
71. Whipple, G. M., *Manual of Mental and Physical Tests*, 1914, p. 534.
72. Woodworth, R. S., *Accuracy of voluntary movements*, Psychol. Monog. 3, 1899, No. 3, p. 114.

APPENDIX I

POINT-SCALE SELF RATING TEST

Below are pairs of opposite qualities or traits. The dotted line between each pair is a scale on which you are asked to rate yourself. If you think you have equal amounts of both qualities or that you are about the average human being, check the colon; if more of one than the other, check to the right or to the left of the colon as far as best represents your case.

For example, if you should have quite light hair your statement of that item might be like this:

Very dark hair . . . : . √ . Very light hair

If the stories of Abraham Lincoln are true it is likely he might have rated himself with respect to kindliness or cruelty something like the following:

Kindliness √ . . : . . . Cruelty

Check always on a dot or on the colon rather than between them.

Begin slowly. See what each item means before you check. When you get the swing of it you can speed up. Work hard. Make sure that each judgment is correct.

1.	Very dark hair	. . . : . . .	Very light hair
2.	Very light eyes	. . . : . . .	Very dark eyes
3.	Extremely blonde complexion	. . . : . . .	Extremely brunette complexion
4.	Always healthful	. . . : . . .	Extremely delicate in health
5.	Avoid using slang	. . . : . . .	Use slang a great deal
6.	Work systematically	. . . : . . .	Work without system
7.	Emotionally explosive	. . . : . . .	Emotionally well poised
8.	Faithful in work	. . . : . . .	Neglectful of work
9.	Believe in socialism	. . . : . . .	Am against socialism
10.	Enjoy sermons	. . . : . . .	Dislike sermons
11.	Careful in workmanship	. . . : . . .	Careless in workmanship
12.	Extremely fond of children	. . . : . . .	Dislike children
13.	Lose head in dangerous circumstances	. . . : . . .	Keep cool in dangerous circumstances
14.	Warm and friendly with others	. . . : . . .	Too antagonistic toward others
15.	Much given to anger	. . . : . . .	Decidedly even tempered
16.	Strong feeling of being inferior to others	. . . : . . .	Strong tendency to feel superior to others
17.	Bashful and retiring	. . . : . . .	Bold and forward
18.	God seems remote	. . . : . . .	God seems near
19.	Tendency to be secretive	. . . : . . .	Open and frank
20.	No faith in prayer	. . . : . . .	Implicit faith in prayer
21.	Often tardy or lax in keeping appointments	. . . : . . .	Prompt in keeping appointments
22.	Sympathetic with doctrines of church	. . . : . . .	Antagonistic toward doctrines of church
23.	No concern about others	. . . : . . .	Wide sympathy with others
24.	Work best alone	. . . : . . .	Work best with others
25.	Like to keep quiet in company with others	. . . : . . .	Like to be a leader in company with others

26.	Always return money when receiving too much change	. . . : . . .	Never return money when receiving too much change
27.	Never lend	. . . : . . .	Generous in lending to anyone who asks
28.	An easy mark for a good salesman	. . . : . . .	Can't be sold anything I do not want
29.	Keep troubles to myself	. . . : . . .	Tell troubles freely to others
30.	Most preachers play on the superstitions of people	. . . : . . .	Most preachers are sincere
31.	Public officials are for most part honest	. . . : . . .	Public officials are for most part playing politics
32.	Religious progress must come through the churches	. . . : . . .	Religious progress must come chiefly outside the churches
33.	I give liberally to charity	. . . : . . .	I dodge requests for charity
34.	Usually feel depressed	. . . : . . .	Usually feel elated
35.	Father always sympathetic with my ideas	. . . : . . .	Father usually unsympathetic with my ideas
36.	Mother always sympathetic with my ideas	. . . : . . .	Mother usually unsympathetic with my ideas
37.	Fear what lies beyond death	. . . : . . .	Look forward with pleasure to it
38.	Unusually thoughtful of others	. . . : . . .	Too unmindful of others
39.	Feel in harmony with divine purpose	. . . : . . .	Feel out of harmony with divine purpose
40.	Desire to succeed financially	. . . : . . .	More interested in other things
41.	Take commands or discipline cheerfully	. . . : . . .	Ignore commands or discipline
42.	Thoughts chiefly about self	. . . : . . .	Mind on other things than self
43.	Shirk chores and duties at home	. . . : . . .	Conscientious and faithful at duties
44.	Morbidly conscientious	. . . : . . .	Chronically irresponsible
45.	Home discipline severe	. . . : . . .	Home discipline gentle
46.	Approve use of tobacco in others	. . . : . . .	Detest use of tobacco in others
47.	Use tobacco habitually	. . . : . . .	Conscientiously opposed to it
48.	Strongly favor conscientious objectors of war	. . . : . . .	Antagonistic toward conscientious objectors
49.	Detest use of slang in others	. . . : . . .	Enjoy hearing slang in others
50.	Christians are better than non-Christians	. . . : . . .	Non-Christians are better than Christians
51.	Should cling to the faith of our fathers	. . . : . . .	Should depart from the faith of our fathers
52.	Dreams tend to be depressing	. . . : . . .	Dreams tend to be uplifting
53.	Like to speak in public	. . . : . . .	Dislike to speak in public
54.	Conduct conforms with ideals	. . . : . . .	Conduct much at variance with ideals

55.	No tendency to blush	. . . : . . .	Much tendency to blush
56.	Confident and fearless	. . . : . . .	Troubled with doubts and fears
57.	Aggressive	. . . : . . .	Easy going
58.	Persistent in an undertaking	. . . : . . .	Shifting from one thing to another
59.	Resting upon what you are told	. . . : . . .	Fondness for finding out things for yourself
60.	The churches teach that Jesus actually changed water into wine	. . . : . . .	They teach it as figurative
61.	The churches require the literal interpretation of the New Testament miracles	. . . : . . .	They require only a symbolic interpretation
62.	Believe the Old Testament story of creation	. . . : . . .	Disbelieve it
63.	Sympathetic with doctrines of church	. . . : . . .	Antagonistic to doctrines of church
64.	Believe the Bible infallible	. . . : . . .	Disbelieve it
65.	Believe that death ends all	. . . : . . .	Disbelieve it
66.	Believe that religion is largely superstition	. . . : . . .	Disbelieve it
67.	Believe in the resurrection	. . . : . . .	Disbelieve it
68.	Believe in the Deity of Jesus Christ	. . . : . . .	Disbelieve it
69.	Believe that Jesus Christ was born of a virgin	. . . : . . .	Disbelieve it
70.	Believe Lazarus was raised from the dead	. . . : . . .	Disbelieve it
71.	Believe that Jesus walked on the water	. . . : . . .	Disbelieve it

The following scale differs from the above in that the colon is at the end. It denotes simply the absence of the quality or trait indicated at the other end of the line. The end away from the colon denotes the extreme as before. Check your position on each item.

72.	Punished often during childhood	. . . . . . :	Never punished during childhood
73.	Punished severly during childhood	. . . . . . :	Punishment not severe
74.	Often feel guilt or remorse for wrongdoing	. . . . . . :	Never feel guilt or remorse
75.	Have sometimes felt the presence of the Holy Spirit	. . . . . . :	No such experience
76.	Brought up to attend Young People's Societies regularly	. . . . . . :	Brought up to attend Young People's societies not at all
77.	Attend Y. P. S. regularly now	. . . . . . :	Do not attend Y. P. S. now
78.	Greatly upset by misfortune	. . . . . . :	Unmoved by misfortune

79. Bothered about unfinished work . . . . . . : Let it rest
80. Widely sympathetic with others . . . . . . : Not sympathetic with others
81. Strict discipline in home . . . . . . : Discipline in home slack
82. Have had moments of satisfaction of immediate communion with a Divine presence . . . . . . : No such experience
83. Often jealous of others . . . . . . : Never feel jealous
84. Very often submissive . . . . . . : Never submit
85. Very strong desire to assert self . . . . . . : No such desire
86. Religion an important part of daily life now . . . . . . : Pay no attention to religion in daily life now
87. Have intimate feeling of God's love . . . . . . : Do not have such feeling
88. Aggressive in debate and discussion . . . . . . : Passive in debate and discussion
89. Distinctly religious . . . . . . : Atmosphere of home not religious
90. Habit of praying during childhood . . . . . . : Never prayed in childhood
91. Consistent in prayer now . . . . . . : Never pray
92. Family entered seriously into family worship . . . . . . : No family worship
93. Brought up to attend church regularly . . . . . . : Brought up to attend church not at all
94. Brought up to attend Sunday School regularly . . . . . . : Brought up to attend Sunday School not at all
95. Father much interested in church . . . . . . : Father indifferent to the church
96. Mother much interested in church . . . . . . : Mother indifferent to the church
97. Attend Sunday School regularly now . . . . . . : Do not attend Sunday School now
98. Implicit faith in prayer . . . . . . : No faith in prayer
99. Useless thoughts continually bothering . . . . . . : Never experience them
100. Sometimes have moments of great inspiration . . . . . . : Never have such experience
101. Very active in religious work . . . . . . : Not active in religious work
102. Enjoyed warm companionship with my father . . . . . . : No such companionship
103. Enjoyed warm companionship with my mother . . . . . . : No such companionship
104. Have a satisfying inner experience in religion . . . . . . : No such experience
105. Seem to have divine leadings and promptings . . . . . . : No such leadings and promptings

106. Seek to know God's will . . . . . . : No such effort
107. God sometimes seems very real . . . . . . : No such experience
108. High respect for the Bible as authority . . . . . . : Indifferent to the authority of the Bible
109. Prayers usually answered . . . . . . : Prayers apparently never answered
110. Have great missionary zeal . . . . . . : No missionary interest
111. Worry about exams . . . . . . : Do not worry about exams
112. Brood over troubles . . . . . . : Usually carefree
113. Much misunderstood by parents . . . . . . : No such difficulty
114. Keen feeling of rivalry . . . . . . : No feeling of rivalry
115. Interested in helping others . . . . . . : Not interested in helping others
116. Afraid of the wrath of God . . . . . . : No such fear
117. Have hope of a happy life hereafter . . . . . . : No such hope
118. Strict religious observance in home . . . . . . : No attention paid to religion in home

Put a check *before* the words that appeal most to you as applying to God or the Universe or whatever you consider to be the essential Reality of the World.

Power
Father
Chance
King
Judge
Forgiving
Punisher
Ruler

Mind
Loving
Law
Universe
Mystery
Comforter
All wise
God

Toiler with mankind
Force for Good
The Indwelling
Law as God's thought
All powerful
A way of speaking
Mechanism
Merciful

Order
Shepherd
Creator
Energy
Jehovah
Chaos
Force
Purpose

Now *underscore* the words in the above list that seem to you the worst.
How many children in your family________________
Your position in the family line, 1st, 2nd, 3rd, etc.________________
Church connection or preference, if any________________________
Was "confirmed" (yes or no)______________At what age______________
Have experienced "conversion" (yes or no)________At what age________
Father's occupation____
Place of your birth___________Brought up in town or country___________
If in town or city, approximately what population________________
Age________________ Sex________________
Father's nationality_______________Mother's nationality_______________
Name____

APPENDIX II

PERSONAL ITEMS SUPPLEMENTARY TO EXPERIMENTAL DATA

We appreciate very much your coöperation in securing some psychological data in the laboratory. We need some additional facts. It will help us if you will kindly react to the following items. The statements you make will be held in strict confidence. Please mail your replies as promptly as possible in the enclosed stamped envelope.

Use the backs of these sheets and any other paper you need to make your answers complete.

1. Name in full--------------------Height------Weight------
2. Games you like best--------------------
3. Sports you engage in most--------------------
4. Teams to which you have belonged--------------------
5. Honors or victories you have won in athletics--------------------
6. When you have a holiday how are you most apt to use it?---------
7. Your standing in your high school graduating class: (Check)
   Lowest 20%--------Just below average---------Average---------
   Just above average---------Highest 20%---------
8. Vocation you expect to follow or to which you incline-------------
9. What is the character of your dreams?--------------------
10. Any special temptations you have to fight?--------------------
    Describe--------------------
11. Ever had visions of absent or dead friends?--------------------
    Describe--------------------
12. Ever heard the voice of absent or dead friends?--------------------
    Describe--------------------
13. Ever heard voices or sounds or experienced revelations or trances of any kind not accounted for by ordinary perception?-------------
    Describe--------------------
14. Ever had promptings within or inner voices not of ordinary experience?--------------------
    Describe--------------------
15. Ever had any desire, weak or strong, to suffer for others?---------
    Describe--------------------
16. Have you had times of spiritual exaltation?--------------------
    Describe--------------------
17. Have you had times when you felt God's nearness?---------------
    Describe--------------------
18. Describe in some detail the religious surroundings and experiences of your childhood--------------------
19. What changes have occurred in your religious beliefs and attitudes? Describe the periods one by one, giving the age and circumstances of each--------------------
20. Give an account of any marked religious experiences you have had.
21. What is your present attitude toward religion?--------------------
22. Has your religious practice or attitude been influenced at any time by impending danger or sickness or disappointment or death of a friend or relative?--------------------
    Describe--------------------
23. What reactions against religion have you experienced, if any, and what marked antipathies or antagonisms have you felt, that are not described in the above account?--------------------

APPENDIX III

LABORATORY TEST DATA

TABLE 1

MEANS AND PROBABLE ERRORS OF DIFFERENCE

Test No.	Means Rad.	Con.	Difference	P. E. of Diff.	P. E. Diff.	Catholics Mean	Diff.	Means Men	Women	Diff. Sexes	P. E. Diff.
1	37.6	37.7	.116	.18	.63						
1A	5.34	5.3	.006	.57	.01						
2	16.2	15.4	.79	.26	3.03			16.2	15.6	.57	2.14
2A	1.33	1.61	.28	.10	2.6						
3	72.5	65.9	6.64	3.9	1.68	66.	6.5				
4	49.6	48.4	1.21	4.86	.25	54.	3.99	46.7	50.6	3.9	.83
5	55.8	55.7	.07	4.4	.02	63.	7.25				
6	56.6	55.	1.69	3.85	.44	63.2	6.6	53.6	56.8	3.17	.78
7	58.3	52.9	5.4	3.86	1.4	64.8	6.8				
8	11.7	10.6	1.1	.53	2.06			14.5	10.	4.47	7.3
9	155.	162.	7.	4.4	1.6			152.	162.	10.	2.48
10	539.	552.	13.2	12.6	1.05	548.	9.	525.	569.	44.	3.2
10A	287.	290.	2.9	.60	.48						
10B	274.	275.	.84	7.9	.1						
10C	99.	.96	.03	.05	.65						
11	43.8	45.6	1.74	8.97	1.94	44.	.2				
11A	172.7	177.8	5.1	3.77	1.25						
11B	108.5	111.1	2.6	2.4	1.07						
11C	109.1	115.5	6.4	2.2	2.9	116.	6.9	109.	116.1	7.1	3.1
12	181.	111.	70.2	18.8	3.72	130.	51.	22.78	102.8	125.04	5.6
12A	94.8	48.6	46.	12.2	3.78						
12B	102.9	64.3	38.6	10.7	3.59						
12C	1.64	1.68	.038	.22	.17	1.92	.18				
13	1.5	2.13	.63	.20	3.1	2.5	1.				
14	2.82	19.	9.15	1.74	5.25			27.	24.5	2.47	2.4
15	4.	4.9	.91	.21	4.25			4.12	4.64	.52	2.2

Test	Means		Diff-	P. E. of	P. E.	Catholics		Means		Diff.	P. E.
No.	Rad.	Con.	erence	Diff.	Diff.	Mean	Diff.	Men	Women	Sexes	Diff.
16	1.36	3.7	2.34	.27	8.7	3.3	1.94	.96	1.84	.88	3.13
17	118.	77.3	40.4	7.1	5.7			135.	76.4	59.6	8.2
18	91.4	101.	8.61	1.9	4.6						
18A	22.6	29.3	6.65	.636	10.4			25.8	25.7	.06	.08
19	14.7	13.8	.73	.26	2.8			14.6	14.9	.31	.84
19A	1.19	1.16	.027	.132	2.						
20	4.62	4.19	.42	.219	1.94	3.6	1.02				
21	18.7	14.3	4.38	1.89	2.32			13.8	17.9	4.11	2.2
21A	4.72	4.16	.556	.256	2.17						
22	123.	127.	4.35	4.95	.88						
22A	24.6	27.7	3.08	2.71	1.14			27.3	26.2	1.16	.28
22B	10.1	10.5	.43	.74	.58						
22C	15.2	18.1	2.9	6.04	.48						
23	292.	376.	84.6	12.5	6.8	377.	85.4	305.	344.5	39.5	2.97
24	15.3	14.1	1.22	.67	1.81	15.9	6.				
24A	11.9	16.8	5.86	2.11	2.78	14.9		16.3	9.25	7.05	3.4
24B	1.6	2.06	4.62	.19	2.43	1.77	.17				
25	25.8	24.7	1.15	.43	2.7			24.72	25.55	.83	1.97
26	16.1	15.8	.27	.47	.57			16.1	15.9	.19	.38
27	2.48	2.14	.34	.115	2.95	2.2	.28	2.02	2.43	.41	1.17
28	69.4	42.4	27.	4.5	6.1	48.8	21.				
29	73.2	44.9	28.3	4.43	6.4	42.	31.2	62.9	58.6	4.33	.88
30	72.8	47.5	25.3	4.46	5.67	48.1	24.7				
31	62.8	42.2	20.6	4.4	4.7	40.	22.8				

TABLE 2

STANDARD DEVIATIONS

Test No.	Rad.	Con.	Men	Women
1	1.39	1.30		
1A	4.06	4.43		
2	2.07	1.8	2.	1.92
2A	.82	.75		
3	25.8	28.8		
4	33.5	34.	30.3	31.7
5	29.5	31.9		
6	28.2	26.2	29.6	25.4
7	30.7	22.7		
8	4.41	3.74	4.96	3.08
9	27.2	37.4	27.1	35.
10	81.	106.	79.	107.
10A	47.4	42.5		
10B	45.8	69.8		
10C	47.	46.	45.	47.
11	6.8	6.5		
11A	26.5	29.5		
11B	16.86	18.84		
11C	18.24	14.73		
12	158.	121.	183.	106.4
12A	118.	53.		
12B	89.4	68.3		
12C	1.97	1.21		
13	1.26	1.7		
14	7.6	8.9	7.12	8.02
15	1.78	1.37	1.76	1.56
16	1.74	2.2	1.82	2.3
17	59.3	46.7	56.1	45.
18	16.3	11.3	5.18	6.6
18A	4.53	4.92		
19	2.77	2.15	2.62	2.75
19A	1.	.97		
20	1.26	1.7		
21	16.6	11.2		
21A	2.05	1.76		
22	21.3	19.		
22A	21.3	19.	34.35	20.05
22B	5.75	5.26		
22C	16.9	14.5		
23	88.5	97.2	91.	103.
24	5.12	4.92		
24A	12.1	20.4		
24B	1.03	1.71		
25	3.05	3.32	2.76	3.43
26	3.5	3.57	3.67	3.52
27	.848	.774		
28	28.8	26.9		
29	29.1	24.4	29.5	27.8
30	29.6	25.8		
31	28.3	25.5		

TABLE 3
KEY TO LABORATORY TEST DATA

Test No.	
1	Visual discrimination of grays, number right.
1A	Visual discrimination of grays, total error.
2	Weight discrimination, number right.
2A	Weight discrimination, total error.
3	Auditory sense of rhythm.
4	Auditory sense of pitch.
5	Auditory sense of time.
6	Auditory sense of consonance.
7	Auditory sense of intensity.
8	Threshold of electric shock sensation.
9	Simple reaction time in thousandths of a second.
10	Rate of tapping, total for two minutes.
10A	Rate of tapping, total for first minute.
10B	Rate of tapping, total for second minute.
10C	Rate of tapping, 10B divided by 10A.
11	Muscle steadiness, total score for holes apparatus.
11A	Muscle steadiness, total score for groove apparatus.
11B	Muscle steadiness, total score for negative suggestion.
11C	Muscle steadiness, total score for positive suggestion.
12	Coördination of arm movement, total score for two minutes.
12A	Coördination of arm movement, total score for first minute.
12B	Coördination of arm movement, total score for second minute.
12C	Coördination of arm movement, 12B divided by 12A.
13	Suggested answers to printed questions in re. picture. (Number of times suggestion was accepted)
14	Suggestion of pain from electric shock. (Number of times suggestion was accepted)
15	Suggestion of increase in electric shock sensation. (Number of times suggestion was accepted)
16	Suggestion of electric shock sensation. (Number of times suggestion was accepted)
17	Endurance of electric shock. (Units of current endured)
18	Score on groove apparatus (11A) with punishment threat.
18A	Score on holes apparatus (11) with punishment threat.
19	Aussage with objects on board, number right.
19A	Aussage with objects on board, number wrong.
20	Memory of objects in picture, number right.
21	Reconstructive imagination (paper folding), point score.
21A	Reconstructive imagination (paper folding), number right.
22	Association test, Seashore apparatus, time in seconds.
22A	Association test, Seashore apparatus, total error.
22B	Association test, Seashore apparatus, error first quarter.
22C	Association test, Seashore apparatus, error last three-quarters.
23	Mazes, time in seconds to solve all five.
24	Follow directions test, number of responses.
24A	Follow directions test, per cent wrong of number answered.
24B	Follow directions test, number wrong.
25	Moral judgment regarding ethical situations, number right.
26	Abstract judgments regarding virtues.
27	University grade points.
28	High School Content Examination, percentile rank.
29	Composite of intelligence tests, percentile rank.
30	Thorndike Intelligence Test, percentile rank.
31	Iowa Comprehension Test, percentile rank.

APPENDIX IV

APPARATUS USED

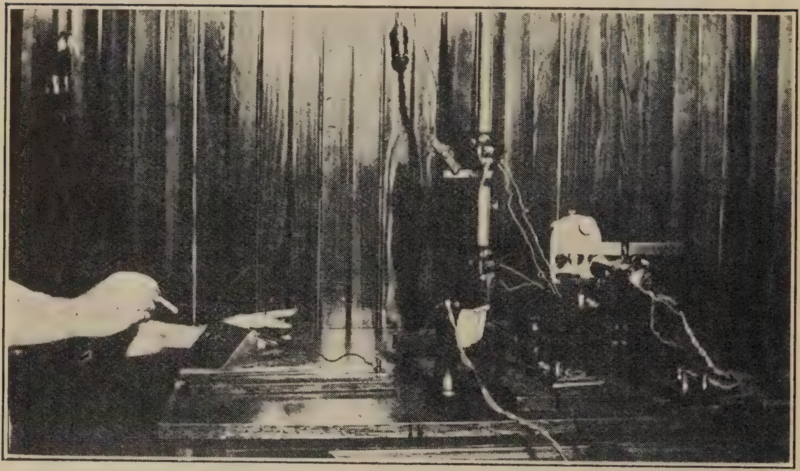

FIGURE 1—Apparatus for Measuring Muscular Steadiness, also Perseverance. Tests 11, 11A, 18

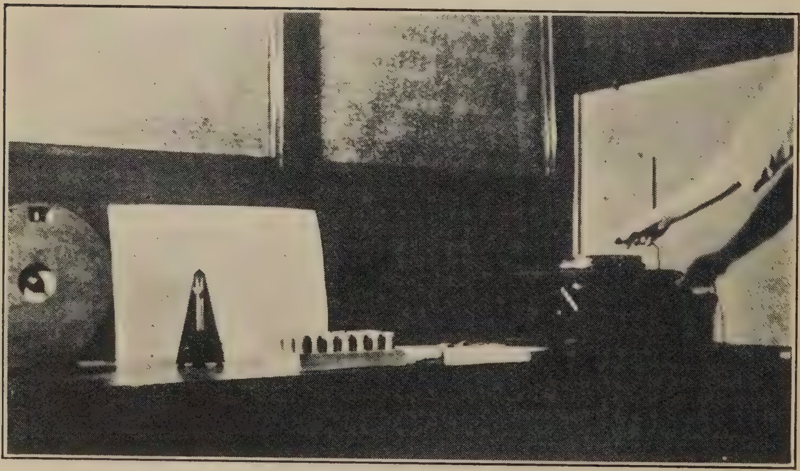

FIGURE 2—Measuring Muscle Coördination. Test 12

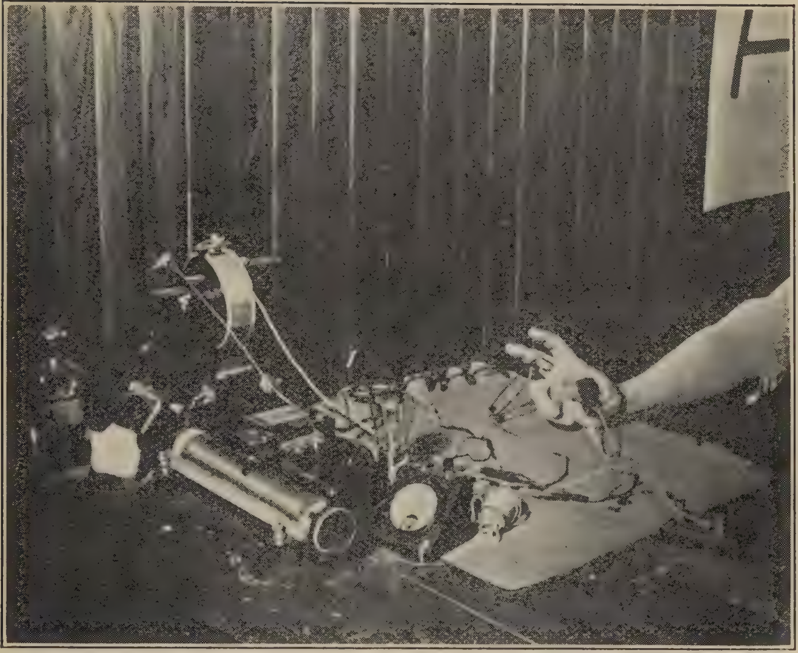

FIGURE 3—Apparatus for Measuring Threshold for Electric Shock, etc. Tests 8, 14, 15, 16

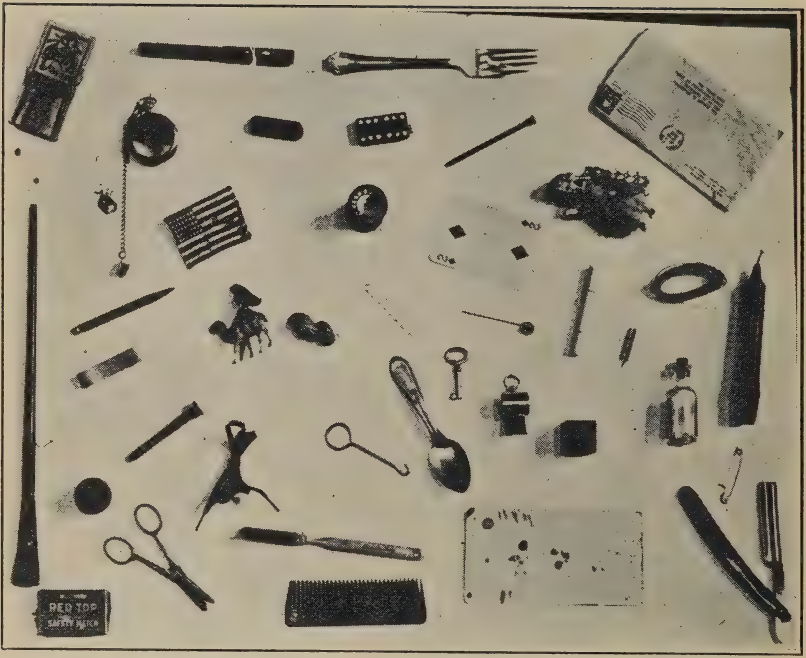

FIGURE 4—Objects used in Testing Reproductive Imagination. Test 19

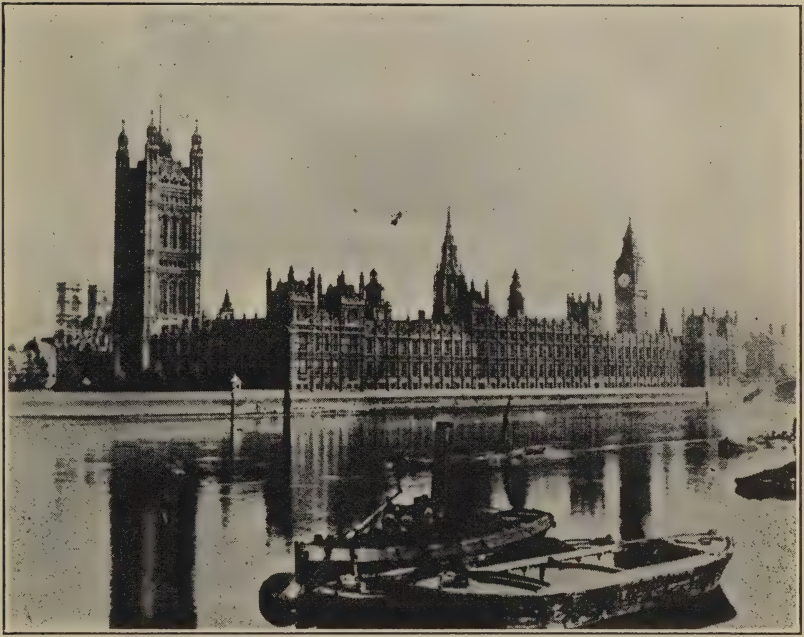

FIGURE 5—Picture used in testing Suggestibility and Memory. Tests 13, 20

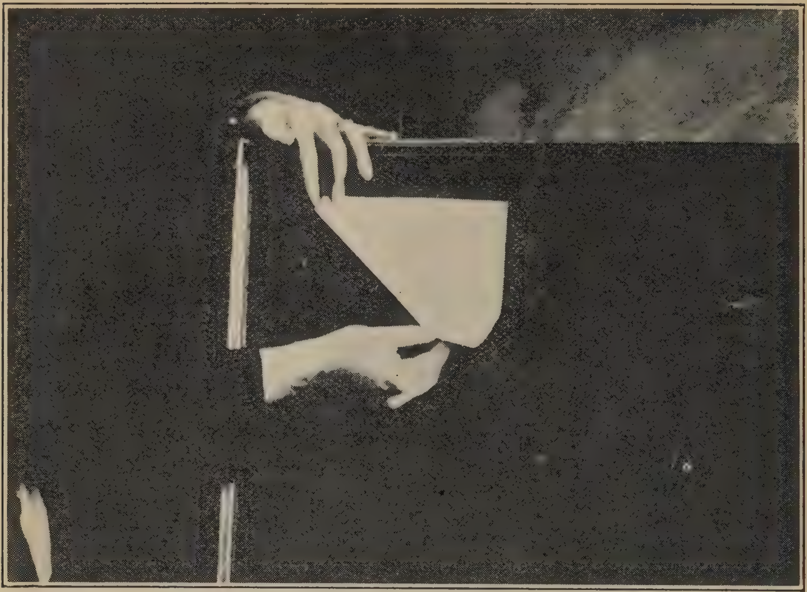

FIGURE 6—Testing Reconstructive Imagination. Test 21

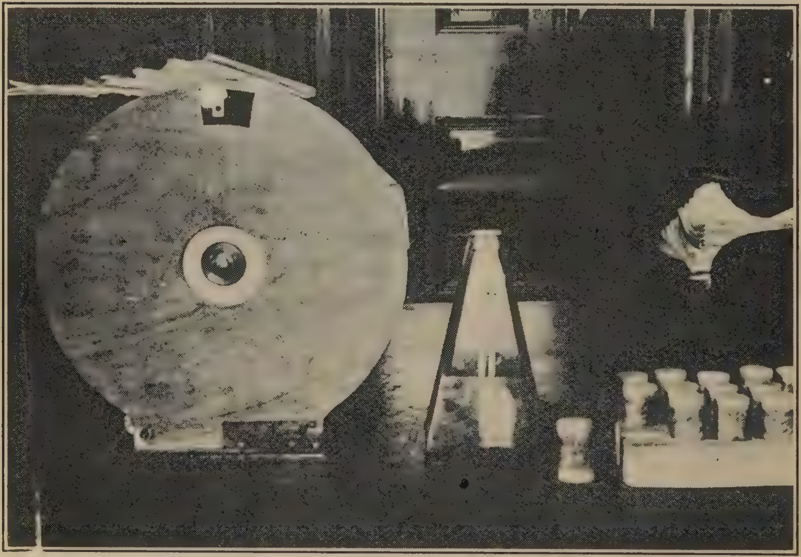

FIGURE 7—Tachitoscope for Measuring Visual Discrimination (Test 1), and Weights for Weight Discrimination (Test 2)

FIRST SERIES, No. 168 DECEMBER 1, 1928

UNIVERSITY OF IOWA STUDIES

STUDIES IN CHARACTER

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Issued semi-monthly throughout the year. Entered at the post office at Iowa City, Iowa, as second class matter under the Act of October 3, 1917.

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EDWIN D. STARBUCK, Editor

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TABLE OF CONTENTS

CHAPTER TITLE PAGE

Foreword 5

Acknowledgments 7

I Introduction 9

II Methods of Differentiating the Groups 11
  The Problem 11
  Selection of the Groups for Study 13
  Reliability and Validity 14

III Experimental Differences between the Groups 16
  Sensory Characteristics 16
  Motor Abilities 21
  Intellectual Traits 28
  Suggestibility 34

IV Personal Data about the Respondents 39
  Self-Rating Scale 39
  Church Affiliations 40
  Sex Differences 41
  Personal Data Questionnaire 43

V Review and Statement of Conclusions 50
  Bibliography 55
  Appendix I 57
  Appendix II 63
  Appendix III 65

FOREWORD

The psychology of religion, although it has enjoyed about a third of a century of slow development, is now, doubtless, about in the condition of physics in the days of Galileo, or experimental psychology at the time of Fechner. It will prosper. Its release has awaited, not interested students, but techniques and tools adequate to the prosecution of any objective science. Some of these devices have been discovered and applied in this study of the mentality of those persons who experience feelings of immediacy of rapport with spiritual verities. The mechanisms used in the study make possible four things almost always characteristic of the objective sciences at their best: the reduction of bodies of data to quantitative determination; the use of objective measures of the stuff handled, as illustrated in the employment of laboratory methods; the use of correlations to determine the reliability of data of a quasi-quantitative nature; and the constant validation of conclusions. This research, together with the companion one by Dr. Howells on conservatives versus radicals, represents probably the first attempt to apply strictly controlled empirical methods, including experimental, to the study of religion.

Edwin D. Starbuck

ACKNOWLEDGMENTS

The writer wishes to express appreciation to his teacher and friend, Dr. Edwin Diller Starbuck, for the suggestion of the problem involved in this study and for his untiring effort toward its solution. The writer is also indebted to his wife for her part in this work. Without her cheerful assistance and encouragement the completed work could not have been possible. Credit is due Dr. Frank K. Shuttleworth for help given in solving statistical problems connected with the study. To the instructors, assistants, and students in the department of psychology of the University of Iowa the writer is especially grateful. It was through their coöperation that the data for study were made available. Whatever merit the work possesses is due in large measure to the assistance and inspiration given by these persons and due acknowledgment is accordingly made.

CHAPTER I

INTRODUCTION

There has been rather wide-spread in the world a type of persons, interesting and somewhat spectacular, who profess having had intimate communion with the Divine Being. They describe it variously: the presence of the Holy Spirit, the feeling of God's love, the sense of communion, divine leadings, irresistible intuition, oneness with the Infinite, indescribable awe, dreamy states, divine promptings, cosmic consciousness, and satisfying inner experiences. Pronounced forms of this sort of experience have been revealed in characters of historic importance. Joan of Arc is declared to have said, "I know I'm right; the voices." George Fox followed "the light within." St. John of the Cross reached the "union of love" through "dark contemplation." And St. Theresa felt the presence of the Lord Christ sitting by her side and whispering words of endearment in her ears.

There have been equally distinctive individuals whose lives were marked by no such experiences. Such persons may work and plan for world betterment, enjoy human fellowship, and live in accordance with the highest moral standards. But they are not conscious of intimate communion with a Divine Being; they never have felt the presence of the Holy Spirit; nor do they make a definite attempt to know God's will, as such. If religious at all, their devout moments are relatively unfervid and colorless.

It is likely that a comparative study of each type with reference to the other may bring to light more clearly than in any other way the hidden mechanisms that condition the mystical experience which those of the first type profess to have. This possibility was the incentive for the present investigation. The desire has been to learn what constitutes the real setting for the presence or absence of this experience, that rôle which it plays in the lives of individuals, and the characteristics of the people in whom it is found; in other words, to uncover whatever fundamental differences exist between the two types of individuals.

It should be made clear from the start that no attempt was made to obtain a description of the religious states and experiences themselves. Volumes of such descriptions have already been written, critical and uncritical. What was desired was an objective, analytical and distinctly empirical study of those who experience the presence of a spiritual being and of those who do not, rather than a description of the experiences themselves, as experiences. The purpose was to gain an understanding of the psychology that distinguishes the former from the latter group.

For the solution of the problem, several considerations were involved. First, some means had to be invented for the selection of the groups to be studied. The traits in question could not be measured objectively, while such subjective measures as are usually employed were considered too unreliable. The procedure as finally worked out is taken up in detail in the following chapter. Second, tests had to be devised to measure those traits which, on hypothetical grounds, were thought to be factors in the religious experience. These tests, with the findings and their interpretations, are described in Chapter III. Third, a questionnaire was prepared on personal items, supplementary to the experimental data. These findings and other relevant information about the respondents are dealt with in Chapter IV. Chapter V contains a summary of the study and a statement of conclusions.

CHAPTER II

METHODS OF DIFFERENTIATING THE GROUPS

THE PROBLEM

The first step in the investigation was to find a representative number of individuals who did or did not profess the experience of the Divine Presence. It was obvious that the only way to do this was to rely upon the confessions of the individuals themselves. Usually the questionnaire has been the resort of the investigator in such a case, and there is no doubt that it is a valuable and effective means of gathering certain types of information. But its usefulness seems to be limited to the kind of facts that the respondents can observe and describe with scientific accuracy. Few persons, if any, are qualified to observe scientifically such subjective processes as occur in the mystical experience and to give exact or even approximately accurate statements regarding them.

Because of this, the questionnaire method was considered too unreliable for the purpose of this study. What was needed was some device by which accurate statements could be secured from the respondents, and also objective proof of the truth of their reports. In short, the data must be obtained in quantitative form and be capable of statistical treatment.

A Point-Scale Self-Rating test, devised with the aid of Professor Edwin D. Starbuck, promised to meet the requirements. In the test each person was asked to rate himself on more than a hundred pairs of contrasting qualities or character traits. In the first half of the test a dotted line of eleven points, the middle one being a colon, connected each pair of qualities on which the person was to rate himself. For example:

Always healthful . . . . . : . . . . . Extremely delicate
Very dark hair . . . . . : . . . . . Very light hair
Kindliness . . . . . : . . . . . Cruelty

If the rater thought he had about an equal amount of each quality at the extremes of the line, he would check the colon at the center of the scale; if more of one quality than the other, he would check to the right or to the left of the colon as far as best represented his case.

The second part of the rating scale differed from the first in that the colon was placed at the end of the line, indicating simply the absence of the trait or quality. For example:

Enjoy art . . . . : No particular interest in art
Very often submissive . . . . : Never submit

This device permitted the measuring of characteristics which could not readily be paired with an opposite.

The method has several distinct advantages. From the nature of the test itself, each check put upon the scale indicates a quantitative measure of the respondent's opinion about himself on that particular trait, a rough numerical estimate of how he thinks he stands as compared with the average individual. Take the third item in the earlier list, for instance. The question is not: "Are you kind?" or "Are you cruel?" or "Would you rather be kind or cruel?" The proposition is, "Regarding kindliness and cruelty, just where do you stand as compared with the average individual? If you are average, check the colon in the middle of the scale; if not average, check to the right or to the left of the colon as far as most accurately represents your case as it appears to you—not as you might like it to be."

Seven features of this scale are outstanding: (1) The field of discourse within which the respondent's judgment must be made is definitely limited. (2) The subject has a new alphabet, so to speak, with which to spell out his characteristics as they appear to exist. (3) He is limited to definiteness of response in quantitative terms. (4) The scale of judgment he uses contains units that remain fairly constant when applied to a variety of situations. (5) The contrasting pairs of traits focus attention sharply on the matter at hand. (6) Care in preparation of items insures that they contain logically and psychologically true opposites; and finally, (7) A check can be made on the reliability of the confessions, because they are expressed in quantitative terms and yield to statistical treatment.

A preliminary try-out with 549 elementary psychology students in the spring of 1925 indicated that this type of test was in general an appropriate and reliable tool for the separation of contrasting groups or characteristics. The intercorrelations which were run between items and between groups of items that were logically related were high. Some few of the items showed that they were too ambiguous or unreliable to be of use; but the larger number proved their worth and were retained in a revised form of the test, to which some new items were added. These expanded it to more than a hundred different points. Among these, eight had particular reference to the aspect of religious experience which was under investigation.

The revised test was altered in one other respect; the rating scale was reduced from eleven to seven points in length. Eleven steps had proved somewhat unwieldy for the respondents to handle, and the units of a seven-point scale seemed refined enough for the purpose at hand. This second test (see Appendix I) was given to an elementary psychology class of five hundred and fifty students in the spring of 1926. It was taken during the first part of the regular class hour. As in the previous test, the individual was asked to consider each pair of qualities or traits as applying to himself and then to mark on the dotted line the one of the seven points which best represented his case, on the scale of diametrically opposite traits or tendencies. The time was limited so that the distribution of the tests, the marking, and the collecting of them were completed for each group in twenty-five minutes.

Selection of the Groups for Study

The data from this testing furnished the material for selecting two opposed groups in regard to the experience of the Divine Presence. As has already been noted, there were eight items which seemed logically related to this experience. They were as follows:[1]

Feel in harmony with Divine purpose	. . . : . . .	Feel out of harmony with Divine purpose
Have sometimes felt the presence of the Holy Spirit	. . . . . . :	No such experience
Have had moments of satisfaction of immediate communion with a Divine Presence	. . . . . . :	No such experience
Have intimate feeling of God's love	. . . . . . :	Do not have such feeling
Implicit faith in prayer	. . . : . . .	No faith in prayer
Have a satisfying inner experience in religion	. . . . . . :	No such experience
Seem to have Divine leadings and promptings	. . . . . . :	No such leadings and promptings
Seek to know God's will	. . . . . . :	No such effort

---

[1] See Appendix I, items 39, 75, 82, 87, 98, 104, 105, 106.

These items were distributed at random among the 110 items of the test, in order to insure, as far as possible, a new and independent judgment in each instance. It was easy, however, to single out the scores on each of these points and to combine them into a total score with reference to the mystical experience. Numerical values were assigned to each of the seven steps in the scale, from 6 at the extreme left of the scale to 0 at the extreme right. The scores of each person on each of the eight items were then totalled.

Those who rated themselves on one or the other of the two extreme left points for each of the eight items, making a total score of at least 40, were separated out to form the group of students who judged themselves as extremely conscious of the Divine Presence. In order, however, to raise the number in the group to an even 50, it was necessary to add 9 individuals whose total scores were only 39. Those who rated themselves on the two points at the extreme right of the scale for each of the eight items made up the contrasting group. A sufficient number of cases to match the 50 of the other extreme were obtained by limiting the group to those whose total scores on the eight items were not more than 6.

These hundred students, fifty representing the extreme mystics and fifty representing the extreme non-mystics, became the subjects of detailed experimentation. They are designated in the following pages as the ''Positive group'' and the ''Negative group'' respectively.

Reliability and Validity

As a check on the reliability of the markings on this test, the ratings on the eight significant items made by the whole distribution of 549 cases were treated statistically by the method of chance-half correlation. The totaled scores of a random four of the items were set against the totaled scores of the remaining four according to the usual procedure. The resulting correlation was .859, a very satisfactory chance-half index of reliability. According to Brown's formula, the test as a whole has a statistical reliability of .924.

This correlation means that if a similar test affecting the same classification as the first were given to the same group, the chances are 58 in 100 that this second test would place the same individuals in the same one-tenth of the distribution, and there are approximately 99 chances in 100 that a case would not be displaced further than into the adjacent tenth.[2] Furthermore, the membership of the two extreme groups would not be varied by more than 16 cases. The chances that any one of these 16 cases would be displaced as much as two "tenths" in a second test are less than 1 in 1000, and that any case selected for either group might be displaced more than two "tenths," or enough to make it fall on the other side of the median and thus change its classification from Positive to Negative or vice versa, are infinitesimal.

The validity of the group placement was further confirmed by the personal testimony of the individuals themselves in reply to a questionnaire which they received some months after taking the self-rating test. Many of the replies, which are considered in Chapter IV, emphasize the distinguishing characteristics of the two groups.

It seems clear from the nature of the test, from the kind of information requested, and from the high reliability of the responses that the scores on the eight Divine Presence items are reasonably valid. The test is evidently quite able to separate out of a miscellaneous group those who are definitely mystical or non-mystical in their experience. The two groups of fifty which rank themselves at the extremes of the distribution are sufficiently distinct from each other to be regarded as valid subjects for the experimentation which followed.

---

[2] Otis, A. S., Statistical Methods in Education, 1925, p. 225.

CHAPTER III

EXPERIMENTAL DIFFERENCES BETWEEN THE GROUPS

At this point it might be worth while to take a fresh look at the problem. The situation was this: there were available for research purposes two groups of students. One group professed to have implicit faith in prayer, to possess a satisfying inner experience in religion, to feel in harmony with the Divine purpose, to have known the presence of the Holy Spirit, to have had the satisfaction of immediate communion with the Divine Presence, to have experienced intimate feelings of God's love, and to be directed by divine leadings and promptings in whatever they did. That is, the group reported positively on all of the items usually considered indicative of mystic rapport with some divine being. The other group, swinging to the opposite extreme, denied any experience of these feelings and beliefs, and claimed to make no effort to gain any intimacy with a higher power.

Many questions at once arise regarding these two extremes. Are the differences between the groups real in terms of differences in mental and physiological functions or traits? If subjected to a battery of tests that would try out such abilities as sensory discrimination, coördination of movement, susceptibility to pain, fatigue or suggestion, intelligence function, memory, imagination, and the like, would the groups reveal significant divergencies such as might account for their opposite reactions to the Point-Scale questionnaire? Or are the differences after all mere reflections of social attitudes, instead of the effects of deep-seated native equipment and capacities? For the purpose of discovering some answer to this question, the members of each group were subjected to a series of experiments, all but six of which were given as individual tests. The description of these experiments, with the findings from them, is the content of the present chapter.

I. SENSORY CHARACTERISTICS

Among the powers which are commonly attributed to the mystic is that of acute sensitivity to delicate stimuli. His receptor mechanisms are supposed to be more finely tuned to the external environment than those of other people, so that he is able to respond to excitations which are too slight to arouse the sense-organs of the average individual. Now the means for testing out this theory in the laboratory are rather well developed. For this reason, a battery of tests was devised, tapping the capacity of the sensory mechanism at a number of different points. One test measured acuteness in vision, another tested the speed and accuracy of muscle response, five worked with the processes of audition, and three measured sensitivity to electrical stimuli.

1. Visual Discrimination

The visual acuity of the two groups was measured by testing their ability to distinguish very small differences in brightness, in the form of slight variations in the shades of gray papers. Twenty shades of gray of varying degrees of difference from a standard gray were presented with the standard gray by means of the customary tachistoscope. The order in which the paired papers were exposed was determined by chance selection, but was standardized for all the observers. The subjects were asked to record their judgments as to whether the compared gray was lighter or darker than the standard gray.

In all, forty judgments were obtained from each subject. Scores were computed on the basis of the number of right discriminations made. Errors were also weighted according to the degree of error made, totaled, and divided by the number of trials, giving the average amount of error for each trial. The results are summarized in the following table:

TABLE 1

Average Scores of the Positive and Negative Groups on Visual Discrimination Test

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
No. right	37.12	1.50	50	37.48	1.40	50	1.86
Error	.13	.13	50	.12	.13	50	.77

Both methods of scoring the test failed to yield any large difference between the two groups. The observed differences between the means are 1.86 and .77 times the respective probable errors of difference, and therefore not statistically significant.[3] The slight advantage which the Negative group shows on this test would probably not repeat itself if the tests were given to any other similar group.

---

[3] The ratio of the observed difference to the probable error of the difference

2. Weight Discrimination

For this test, which involves both cutaneous pressure and sensations of muscle, joint and tendon, a set of measures was made by weighting uniform cardboard boxes on the inside. They were cartridge style, 2″ long and 1″ in diameter, and consisted of a standard of 80 gr. with twenty other comparison weights in series from 60 to 100 gr., at 2-gr. intervals.

In administering the test, a container for the weights was used which placed the standard weight of 80 gr. in a position nearest the right hand of the experimenter and kept the variables always in a standardized order, previously determined by chance selection. The observer was seated in a chair so that his elbow and forearm rested comfortably on the table, the elbow being used as the fulcrum for movement rather than the wrist. The standard 80 gr. weight was lifted before each variable, and the observer reported "heavier," "lighter," or "the same" for the variable, depending upon whether he thought it was heavier, lighter, or the same in weight as the standard.

The score for each observer was the number of right discriminations and the average error in grams. The mean scores and standard deviations for each of the groups are given in the following table:

TABLE 2

Average Scores for the Positive and Negative Groups on Weight Discrimination Test

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
No. right	15.32	1.88	50	15.40	1.84	50	.32
Errors in grams	1.45	.79	50	1.34	.88	50	1.00

---

indicates the likelihood that as large or larger differences would occur by chance in repeated trials of the same test on exactly similar groups. Thus, for various ratios the chances are:

Ratio	Likelihood of a Similar Diff. Occurring
1	1 in 2 times
2	1 " 5 "
3	1 " 20 "
4	1 " 142 "
5	1 " 1,250 "
6	1 " 20,000 "

The slight differences between the Positive and the Negative groups are without statistical significance.

3. Sensitivity to Electric Current

A direct current[4] operating through a galvanometer was used in this experiment. The electrodes were spring clamps insulated at the side that applies to the back of the finger and thumb so that the current had always to pass through the front part of the finger.[5] (See Appendix III, Figure 1.) These were always attached to the thumb and middle finger.

Three measures were obtained in all: the lower limen of sensitivity to the current, the lower threshold for pain as distinguished from mere sensation, and the maximum amount of current the individual was willing to stand. The readings were taken from the galvanometer, which registers the actual amount of current passing through the circuit and not the voltage applied to the body. For convenience and accuracy in reading, the scale on the galvanometer was calibrated into proportional units, each one approximately equal to six microamperes. The score in each case was the average of five trials, given successively. The data for the two groups are summarized in Table 3.

TABLE 3

Average Scores for the Positive and Negative Groups on Sensitivity to Electric Current

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Threshold of Sensation	12.34	4.00	50	13.47	7.70	50	1.69
Threshold of Pain	25.51	15.12	50	29.87	18.91	50	1.88
Maximum Pain	85.75	50.54	50	126.88	57.12	50	5.67

As far as these data indicate, there is no important divergence between the two groups in the lower limen of sensitivity to electricity, nor in the lower limen of pain from electricity. The small differences that do exist point to the Positive group as the most sensitive in both cases. The tendency here is contrary to the results obtained in visual and weight discrimination, in which the Negative group appeared the more sensitive. For maximum pain, however, there is a very marked difference, the Negative group being distinctly more willing to stand a large amount of pain. This is difficult to explain in the light of the fact that the pain thresholds of the two groups are practically equal. If it should develop on further testing that the negatives are really less sensitive to pain, the matter would be cleared up. The present results are especially interesting because they are contrary to what the experimenters had expected from the historic accounts of religious martyrdom. The probability is that the martyrs who are reputed to have undergone inconceivable pain and torture without a murmur were no more anaesthetic than their persecutors, but were able to withstand their sufferings because of a highly wrought psychological condition impossible to duplicate under laboratory conditions.

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[4] The direct current was derived from an ordinary alternating current of 110 volts, which was first passed through a transformer, reducing it to 20 volts. The current was then carried through a high voltage transformer, on one side of which was a control rheostat of 120 ohms resistance and on the other side a switch key not visible to the observer. The secondary current was that used for the experiment. A rectifier changed it to a direct current, which was passed through a vacuum tube, and thence through the galvanometer and the right hand of the observer.

[5] This precaution was taken because the current was found to give pain at the base of the hairs if applied to the outer surface of the finger. The reports of the observers proved unreliable when the wire of the electrode was clamped exactly over the joint. For these reasons the contacts were made on the fleshy parts of the finger and thumb nearest the palm.

4. Auditory Discrimination

The records of the members of these groups on the Seashore Music Tests[6] were available and offered a reliable index of various auditory capacities. These tests, as is well known, measure the ability to discriminate slight differences in pitch, in intensity of sound, in time-length of intervals, in rhythmic patterns, and in the affective quality of musical consonances. The scores are converted into percentile rankings, and it is from these that the data in Table 4 have been compiled.

TABLE 4
Average Scores for the Positive and Negative Groups on Seashore Music Tests

	Positive			Negative			$\frac{\text{Observed Diff.}}{\text{P.E. of Diff.}}$
	A.M.	S.D.	N	A.M.	S.D.	N	
Rhythm	65.23	27.75	47	71.78	26.89	41	1.66
Pitch	43.27	31.23	44	43.38	31.80	44	.02
Intensity	51.48	25.38	45	49.22	32.17	44	.54
Time	47.82	32.59	46	53.04	32.58	42	1.10
Consonance	52.06	27.95	49	51.06	29.57	49	.20

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[6] Seashore, C. E., Manual of Instructions and Interpretations for Measurements of Musical Talent. Columbia Graphophone Company, New York City.
Seashore, C. E., The Psychology of Musical Talent. Silver Burdett and Company, 1919.

None of the differences are statistically significant, nor are the very small differences that do exist consistently in favor of either group.

Summary of Findings from the Tests of Sensory Discrimination Tests

With one exception, the results of this group of tests were negative. The only significant difference noted was the amount of pain through electric shock that the two groups were willing to bear, the Negative group showing the greater endurance. This is not strictly a test of sensitivity. In no other cases did significant differences appear. So far as one can judge from the tests given, the difference between the groups is not related to the sensitivity of the physical senses.

II. Motor Abilities

A related field of inquiry into the physical makeup of the mystic is the motor system. Are there differences in precision, quickness, and coördination of movement, which distinguish him from the average individual, or from those individuals who stand most in contrast to him? Here also the laboratory is rich in devices for measuring these abilities. The members of each group were run through a special battery of motor tests, which included measures of single simple muscular reactions under pleasurable and annoying situations, and combinations of physical and mental reactions.

1. Simple Reaction Time

The simple reaction time of the groups was measured by the Klopsteg Chronoscope, according to the usual technique.[7] The score was the time in thousandths of a second which the observer required to respond to an auditory stimulus with a muscular reaction. In the following table, the means and standard deviations for each group are recorded:

TABLE 5

Average Scores for the Positive and Negative Groups on Simple Reaction Test

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
Reaction Time	161.88	38.76	50	153.19	29.37	50	1.87

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[7] Klopsteg, Paul E., "A New Chronoscope and Fall Apparatus," Journal of Experimental Psychology, Vol. 2, 1917, p. 252.

Here a difference is seen in favor of the Negative group, but one so slight as to be of no statistical significance.

2. Rate of Continuous Movement

Rate of continuous movement was measured by having the observer tap continuously on an ordinary telegraph key as rapidly as possible with the forefinger.

Each observer tapped two minutes and ten seconds. A record was kept of the number of taps made during the first sixty seconds and during the last sixty seconds. The number of taps for the first sixty seconds was taken as a measure of skill in the activity. A quotient of the number of taps in the second sixty seconds divided by that of the first period was read as an index of the fatigue which had set in. The average scores of the Positive and Negative groups are shown in Table 6:

TABLE 6

Average Scores for the Positive and Negative Groups on Tapping Test

Rate of	Positive			Negative			Observed Diff.
Tapping	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
1st 60 sec.	285.00	39.40	50	289.28	43.99	50	.75
Last 60 sec.	262.44	48.06	50	277.18	49.61	50	2.23
Ratio: last to 1st	.92	.11	50	.95	.10	50	3.80
Sum: 1st and last	547.44	83.00	50	566.46	88.92	50	1.63

From the table it will be seen that there is little difference in the rate of tapping during the first minute. During the second minute the Positive group tapped on the average only 92 per cent as many times as during the first minute, while the Negative group tapped 95 per cent as many times. The ratio 3.8 indicates that the difference is probably significant: there are 99 chances in 100 that it is not due to chance. This throws some light on the question as to which group possesses the greater physical endurance. The results indicate that the Positive group is more apt to fatigue quickly.

3. Muscle Steadiness

Accuracy, steadiness, or precision of movement was measured by the use of a device as follows.[8] (See Appendix III, Figure 2). A brass plate, set at an angle of 45 degrees and pierced with nine holes ranging in diameter from 13 mm to 2½ mm was connected in series with a battery, a sounding bell, and a metallic stylus. The test consisted of inserting the stylus in the holes and withdrawing it without touching the metal plate. The largest hole was entered first, then the next largest, and so on. The holes were numbered from 1 to 9, from the largest to the smallest. The number of the hole in which contact was first made with the plate, causing the bell to ring, was counted as the score made by the observer for that trial. Five trials were made with positive directions, such as, ''Place the stylus exactly in the middle of the hole. Put it right in the center''; and, following this, five trials with directions stated negatively, such as, ''Be careful not to touch the edge of the hole. Don't let the stylus come in contact with the metal,'' etc.

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[8] Whipple, Guy Montrose, Manual of Mental and Physical Tests, Warwick ad York, Baltimore, Md. 1910.

In a third set of five trials, an electric shock was substituted for the sound of the bell as the warning that contact had been made. The handle of the stylus was wrapped with tinfoil and connected in series with the rest of the apparatus. A metal electrode was attached to the thumb of the observer on the hand which did not hold the stylus. The observer was told, ''We shall now proceed as before, but with this difference: the bell will not signal when contact is made, but instead you will get a shock which will be no greater than you are willing to bear.'' The amount of pain that the observer was willing to endure had already been determined (See page 19).

Steadiness was also measured by the use of the tracing board.[9] This test consisted in passing the metal stylus along a narrow angular glass-lined trough between two metal strips and noting, when warning was given by the electric bell, the portion of the trough traversed without bringing the stylus in contact with the metal strips. The measure was taken from an attached centimeter scale. The first five trials were given under negative instructions, and the second under positive. Five additional trials were made under the expectation of pain from electric shock, with the apparatus adjusted as in the previous test. In all fifteen trials the arm and hand were entirely free from support. The results are shown in Table 7.

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[9] Whipple, Guy Montrose, Idem.

TABLE 7

Average Scores for the Positive and Negative Groups on Steadiness Tests

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Holes, positive directions	22.08	3.50	50	22.16	4.29	50	.15
Holes, negative directions	22.22	3.49	50	21.94	3.48	50	.59
Holes, with pain	26.64	4.93	50	23.92	5.50	50	3.96
Trough, positive directions	89.90	15.16	50	87.85	20.20	50	.85
Trough, negative directions	84.66	18.68	50	85.41	22.17	50	.27
Trough, with pain	98.36	16.41	50	97.03	25.83	50	.45

No differences appeared in the muscle steadiness of the two groups with either apparatus, nor under either type of instruction. In the case of the holes test, however, when muscle steadiness was motivated by pain the Positive group made the better score. The difference does not appear in the trough test. It will be recalled here that in the Weight Discrimination Test, which also involved sensations of muscle, joint, and tendon, no significant differences appeared. The relation of this test to the question of suggestibility will be considered later in the chapter.

4. Muscle Coördination

The pursuit apparatus was used for the purpose of measuring the acquisition of skill in coördination of eye and hand movement.[10] In this experiment, the observer was asked to keep a hinged pointer in continuous contact with a brass target, 1.9 in diameter, which rotated on a phonograph disc at a distance of 8 cm. from the center. The disc of the phonograph was controlled to make one rotation per second; a Veedler counter recorded in tenths of a second the amount of time the observer was able to maintain the contact.

Two minutes and ten seconds were allowed for the test, and record was kept of the score for the first sixty seconds and for the last sixty seconds. The computations are given in Table 8.

Table 8 indicates that the Negative group are much more skill-

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[10] Koerth, Wilhelmine, ''The Pursuit Apparatus: Eye-Hand Coördination,'' Studies in Psychology, State University of Iowa, Vol. 8, 1922, pp. 288-292.

TABLE 8

Average Scores for the Positive and Negative Groups on Eye-Hand Coördination Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
1st 60 seconds	37.16	39.40	50	80.95	52.00	50	6.92
Last 60 seconds	52.95	60.80	50	110.81	75.40	50	6.16
Ratio: last/1st	2.04	3.25	50	1.62	1.37	50	1.26
1st plus last	90.12	100.87	50	191.75	124.40	50	6.54

ful than the Positive in their eye-hand coördinations. The ratios 6.92, 6.16, and 6.54 give these differences a high degree of statistical significance. The Negative group made a somewhat greater absolute improvement during the second minute, but relative to the skill shown in the first minute, the proportional improvement of the Positive group is greater. The difference, however, is not statistically significant.

In the Weight Discrimination Test and in most of the steadiness tests, which also involve muscle and tendon, no differences of significance were found. The question naturally arises as to whether the scores on this test may be due to mental rather than to physical differences. In the next test to be reported and in still other tests this hypothesis will be subjected to more careful examination.

5. Serial Reaction

Serial Reaction time was measured by a machine which had been devised in the psychological laboratory of the State University of Iowa. It consisted of a smooth dial 13″ in diameter which faced the observer. Behind it was supported a circular cardboard of equal size, bordered with a row of color spots 3/16″ in diameter. The colors were red, yellow, green, and blue, placed in chance order. Four small keys (levers) at the front and bottom of the machine were used to rotate the cardboard with the color spots back of the dial. The observer could see the color spots one at a time through a small aperture at the top of the dial.

When a certain color spot appeared in the aperture it could be made to disappear to the right by pushing one of the four keys at the bottom of the frame, each color being connected with a certain one of the keys. At the same time that one color spot disappeared another of a different color was brought into view through the aperture. The observer was to learn which key would cause each color to disappear from the aperture and then to make the color spots move on as rapidly as possible. The time for completing the circle of color spots was recorded and also the number of errors made during each ten seconds period. The average results for the two groups are given in Table 9.

TABLE 9

Average Scores for the Positive and Negative Groups on Serial Reaction Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Serial Reaction Time	152.76	61.53	50	128.08	36.88	50	3.60
Total Error	36.50	31.79	50	25.16	20.28	50	3.15
1st quarter	11.88	8.22	50	10.14	5.05	50	1.89
2nd ”	8.90	8.19	50	6.10	6.06	50	2.88
3rd ”	7.82	8.31	50	4.54	6.71	50	3.22
4th ”	7.92	9.02	50	4.38	5.28	50	3.55

The table indicates that the Negative group were much quicker in response and consistently more accurate. The results are what one might reasonably expect, since the Negative group surpassed in muscle coördination and rate of tapping. Since in the experiment an element of learning is involved, the mental factor is also important. The results suggest that, on the whole, the Negative group is mentally more alert and more capable of learning.

6. Tracing Mazes

Another attempt was made to measure ingenuity and alertness by the use of pencil mazes. Five mazes of varying degrees of difficulty were chosen: three were Porteus' Tests, Years XI, XII,, and XIV,[11] but with the starting point taken at the outside instead of in the center; one was a very slight modification of the Hampton Court maze; and one of much greater difficulty was devised by the experimenter.

The score was recorded in seconds. For some who were unsuccessful in the most difficult maze, time was called at the end of five minutes. The mean time and the standard deviation for each group on each of the mazes were calculated, as well as the per cent of each group completing mazes 4 and 5. The results are presented in Tables 10 and 11.

The Negative group were somewhat quicker than the Positive

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[11] Porteus' Test, Vineland Revision, C. H. Stoelting Co., Chicago, Illinois.

TABLE 10

Average Scores for the Positive and Negative Groups on Maze Tests

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
Maze 1	31.45	11.76	50	24.62	7.35	50	5.17
Maze 2	15.59	8.62	50	13.96	7.72	50	1.81
Maze 3	16.23	6.81	50	13.80	4.86	50	3.04
Maze 4	80.45	52.80	50	60.11	27.11	50	3.48
Maze 5	229.97	66.22	50	196.19	74.71	49	3.52

TABLE 11

Per cent of Groups Finishing Mazes Number 4 and 5

Maze No. 4	Positive	Negative
Per cent finishing	92	98
Per cent having time called	2	0
Per cent giving up	6	2
Maze No. 5		
Per cent finishing	54	78
Per cent having time called	28	14
Per cent giving up	18	8

group on all the mazes. On the first maze the difference is clearly significant. On mazes 4 and 5, the number of the Positive group who gave up without taking their full time is more than twice as large as the number in the Negative group who quit before they were required.

So far as quickness of movement is a factor in tracing the mazes, the results corroborate the findings on the Tapping Test. Although no record was made of the number of errors, the greater speed of the Negative group may have been due to avoidance of error, as in the Serial Reaction Test (See Table 9). In so far as mentality is a factor in maze tracing, the results are in favor of the Negative group. This corresponds with the findings on the Coördination Test and the Serial Reaction Test.

Summary of Findings from Motor Abilities Tests

In summarizing the findings of this group of tests, it will be enlightening to divide them into two types: first, those that involve little more than a simple motor reaction; and second, tests of complicated reactions involving central control. On the first type of test, little difference appears in the abilities of the two groups. In simple reaction time and in rate of tapping the two groups are practically on a par with each other, except as the factor of fatigue enters in. The same is true of the test of muscle steadiness, the only deviation occurring in the use of the holes apparatus when motivated by penalty of pain. In contrast to this similarity in simple motor skill is the marked superiority of the Negative group on tests of more complicated performance that involve intelligence. In the coördination tests the observed advantage was so large that it could not occur by chance more than once in 20,000 times. While the corresponding probabilities for serial reaction and maze tracing were not quite so large, the data show conclusively the superiority of the Negative group.

III. Intellectual Traits

The findings from the last series of tests seem to indicate a difference in mental ability between the groups. The present section of the chapter reports the findings on traits that are more specifically intellectual, such as memory, imagination, reason, and general intelligence.

1. Memory

Two measures of memory were taken, both administered as group tests.

(1) *The Picture Test.*

In this test, the observers were asked to attend to a picture for a period of thirty seconds, under carefully standardized conditions. (See Appendix III, Figure 3). The picture was then removed and after an interval of ten seconds the observers were required to answer twenty-five questions on a prepared form. Two minutes were allowed for this. Most of the questions were of the suggestion type, and will be discussed in a later section of the chapter. Nine of them, however, involved specific points of discrimination about the details of the picture:

How many boats are there in the picture?
How many towers are there in view?
How many turrets on the main tower?
Are there any trees in the picture?
Are the windows in the main tower rectangular?
Was there a clock in the largest tower?
How many faces of the clock are showing in the picture?
Is there a bridge showing anywhere?
Did you see the flag staff on the largest tower?

The papers were scored on the basis of the number of correct answers. The averages for the two groups follow:

TABLE 12

Average Scores for the Positive and Negative Groups on Discrimination Questions of Picture Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Questions answered correctly	3.48	1.61	49	3.82	1.65	50	1.55

This test, measuring observation and memory factors, does not reveal any significant differences between the two groups, although the Negative group seems to have a slight advantage.

(2) *The Aussage Test*

This test was used to eliminate any factor of familiarity which might have affected the results of the previous experiment. The apparatus employed is an Aussage board (See Appendix III, Figure 4), on which are placed a large number of simple and easily recognized objects. These are exposed to the observers' view for thirty second. The observers are then given three minutes in which to write the names of as many objects as they can remember.

This test measures more than one single element of mentality. It demands capacity to observe, retain, recall, and report. Differences in score might be due to misdirected attention, mal-observation, errors of memory, lack of caution or of zeal for accurate statement, scanty vocabulary, injudicious phraseology, or deliberate intent to mislead. Many of these objections were met and overcome in the making of this test. Of course, an experimenter cannot be sure that he has control of the attention of an observer. But under carefully standardized conditions, the test can be made reasonably reliable. Attention was directed to the Aussage when the test was to be given, and any distractions in the immediate surroundings were constant for the group. The lighting of the room, the placing of the board, and the seating of the observers were all calculated to overcome mal-observation. The difficulty of phraseology or lack of vocabulary was met by having the objects on the board ones which are in common use. In short, the effort was to measure memory ability as free as possible from other factors. The average results are shown in Table 13.

The data in the table indicate that the differences between the groups are not statistically significant. Those that do exist are

TABLE 13

Average Scores for Positive and Negative Groups on Memory Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Number right	13.78	2.12	50	14.34	2.87	50	1.65
Number wrong or repeated	.76	1.37	50	.68	.81	50	.55

in favor of the Negative group and are consistent with the results obtained from the preceding test.

3. Ability to Follow Directions

From tests of accuracy of observation and memory the study turned to the more distinctly intellectual abilities. One of these is the ability to follow directions. A slight modification of Woodworth and Wells' ''Follow Written Directions'' test was administered as a group test. A period of one minute and twenty seconds was allowed and the number of directions followed in that time was given as the grade. The number of errors for each individual was also recorded. The results follow in Table 14.

TABLE 14

Average Scores for Positive and Negative Groups on ''Follow Written Directions'' Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Number followed	12.84	6.35	50	13.70	6.24	50	1.01
Number wrong	1.16	1.13	50	.76	1.03	50	2.83

The factors scored on this test were speed and accuracy. The results, while they do not definitely establish that the Negative group is superior, strengthen the findings in the previous tests that it reacts more quickly and more accurately than the Positive group. In addition, there is evidence of superior comprehension of directions.

4. Ethical Discrimination and Abstract Judgment

In an attempt to measure other levels of intellectual ability a special test of ethical and abstract perceptions, constructed by Professor E. D. Starbuck, was used. It consisted in part of multiple choice items, some of which were concerned with questions of social relationships. The following is a sample item:

If one makes a promise he is unable to keep he should:
a. Make an explanation
b. Show the one to whom the promise is made so much consideration that he will forget it
c. Wait until he is asked about it
d. Try to avoid meeting the person

Other items required the definition of moral terms, such as:

Justice means
a. To have peace
b. To let everyone have what is coming to him
c. What the courts decide
d. To get your rights even when it is against the other fellow

A third type called for the exercise of moral judgments in matters of conduct, as:

The Golden Rule applies to
a. Business transactions only
b. Individual persons only
c. Your friends and enemies and to animals
d. Your intimate friends only

The last part of the test was constructed for the purpose of testing the ability of the groups to think in abstract terms. A sample follows:

Write an opposite of:
1. Cause
2. Life
3. Mirth

Write an antonym of:
1. Glee
2. Faith
3. Thing

Only a few of the individuals who took the test were able to reach this part in the allotted time. The results therefore have not been used in this study.

In scoring the tests, the first two parts were combined as a test of Ethical Discrimination, and the third part considered a test of Abstract Judgment. Each item called for two responses: the most appropriate, which was marked "B," for "best," and the least appropriate, marked "W," for "worst." The test had been sufficiently standardized so that a definite criterion for the correct responses was available. A score of 0, 1, or 2 was possible on each item. The maximum score attainable for the first part was 44, and for the second part 16. The results are shown in Table 15. The slight advantage which the Negative group appears to possess might easily be due to chance.

TABLE 15

Average Scores for Positive and Negative Groups on Ethical Situations Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Ethical Situations	23.98	3.61	50	24.81	3.88	50	.39
Abstract Judgment	14.32	4.22	50	15.10	4.26	50	1.38

5. Spatial Imagination

A paper folding test was given as a measure of imagination for spatial patterns. The experimenter stood before the group and folded squares of paper 8½″ x 8½″ against a black background, in such a way that all the movements could be clearly seen. The observers, without seeing the papers unfolded, were asked to reproduce on a standardized form the fold marks—that is, the complete pattern made by the creases in the paper. Eight foldings were made, each a different and successively more difficult pattern. (See Appendix III, Figure 5).

The relative difficulty of each of these patterns had already been determined in a preliminary testing of 160 individuals. On the basis of the number of individuals solving each pattern, numerical weights were assigned to each one respectively as follows: 2, 2, 3, 6, 4, 6, 9, and 30. The scores of the observers on the basis of this ranking are summarized in the following table:

TABLE 16

Average Scores for Positive and Negative Groups on Spatial Imagination Test

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Number right	3.74	1.53	50	3.58	1.83	50	.72
Weighted score	13.94	11.81	50	13.94	13.37	50	0.00

The data on this test reveal no difference between the groups. Since memory is one of the factors involved, the results are in agreement with the negligible differences obtained from the picture test.

6. University Grades

A further check on the comparative mental ability of the two groups was available in the records of the grades that these students had made in their academic courses. The average grade points for the first semester of 1925-26 were chosen for comparison. The findings are summarized in Table 17.

TABLE 17

Average Grade-Points for the Positive and Negative Groups
First Semester, 1925-26

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
Grade points	2.05	.73	45	2.14	.78	47	.90

It will be seen that the grade points for the two groups are nearly the same. This casts doubt upon the hypothesis that the better records of the Negative group on some of the tests are due to superior mentality.

7. Intelligence Tests

In addition to grades, every individual in the experimental groups had on record the score which he had made on the University entrance examinations. These were in terms of percentile rank. A composite intelligence percentile ranking based upon accomplishment in the three tests was secured. A comparison of the percentile rankings for the two groups is found in Table 18.

TABLE 18

Average Scores for Positive and Negative Groups on
University Entrance Examinations

	Positive			Negative			Observed Diff.
Test	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
Iowa Comprehension Test	40.48	28.14	25	65.00	25.69	25	4.77
Iowa High School Content Exam.	39.18	28.86	33	65.52	27.22	34	5.69
Thorndike Intelligence Exam.	42.30	26.88	33	56.47	28.73	34	3.09
Total Intelligence	37.57	27.82	33	64.52	28.61	34	5.77

The difference between the means for each test are statistically solid and are all in favor of the Negative group. That they could scarcely have occurred by chance is evident from the ratios of difference, all of which are large. These data fully support the assumption that the Negative group surpasses the Positive group in intelligence. The contrary evidence in the preceding table suggests the presence of some compensating factor, non-intellectual in nature, which the tests so far reported have not yet tapped.

Summary of Findings from the Tests of Intellectual Traits Tests

In every respect except that of grade points, in which no difference developed, the results favor the Negative group. While the advantage is not a decided one in most of the tests (the Aussage, Follow Directions, Ethical and Abstract Perception, and Paper Folding tests), the general trend is quite evident and is strikingly confirmed by the great divergence in the intelligence tests. It is apparent that the Negative group possesses superior mentality.

IV. Suggestibility

In planning the study one of the important considerations was the hypothesis that the center of inner values professed by the more religiously-inclined group might be a reflection of group consciousness. Assuming that a person who appeared quite open to the influences of the social group of which he had been a member might also be responsive to hints and cues in his surroundings, a laboratory approach to this question was practicable. If this supposition is correct, the persons who experience the Divine Presence should betray a higher degree of suggestibility than do the opposite type.

In order to try out this hypothesis three tests on suggestibility were devised. The results of one have already been reported in connection with the steadiness tests (p. 22). It will be recalled that neither group seem to be affected one way or the other by positive or negative instructions (Table 7, p. 24). In the same series of tests, however, the penalty of pain with the holes apparatus increased the efficiency of the Positive group to such an extent that the proportional difference in improvement between it and the Negative group was statistically significant. How much of this is due to suggestion is difficult to say because other elements of sensory and motor abilities are involved. In the following tests the attempt has been made to obtain a measure of suggestibility uninfluenced by other factors.

1. Suggestibility to Electric Current

One objective measure of suggestibility that lent itself readily for this purpose was an adaptation of the threshold test of electrical stimulation. In the electrical apparatus previously described, (page 17), the switch, which was out of view of the observer, was disconnected; the experimenter began his directions with, ''Now, I am going to change the range of the instrument so that it has less power, and I want you again to report when you get the least sensation of the current. This time I expect you will begin to feel the current right in here.'' With this, he pointed to a position somewhere in the middle range of the rheostat. The experiment then proceeded as before.

When the designated point was reached, the experimenter would look up inquiringly and ask, ''Do you feel it now?'' If the observer answered ''Yes'' the response was recorded on the data sheet and another trial made; if he answered ''No,'' the experimenter continued to move the rheostat button beyond the stated point, and kept making the inquiry repeatedly until the observer answered ''Yes'' or until the end of the rheostat had been reached. If the latter was the result, the observer's response for that trial was recorded as negative. Five such trials were made.

For the second experiment, the switch was closed again so that the observer could feel the current. The experimenter's directions were, ''The next thing I want to find out is the least perceptible difference you can observe in electric current. I want you to note carefully the sensation in your hand now. Then, as I move the button on the rheostat, as soon as you can feel the current *distinctly* stronger than it is now, say 'Now'.'' The experimenter then secretly adjusted the rheostat so that no increase in current was possible, and started the movement of the rheostat button as if to let more current pass. He kept questioning the observer, ''Do you feel it stronger now? Now?'' etc. According as the observer admitted or did not admit an increase in the strength of the current his responses were recorded ''Yes'' or ''No.'' The experiment was repeated five times. Scores were determined in terms of the number of ''Yes'' responses. The average results on both experiments are reported in Table 19.

TABLE 19

Average Scores for Positive and Negative Groups on Suggestibility to Electric Current

	Positive			Negative			Observed Diff. / P.E. of Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	
Suggestion without current	3.36	2.09	50	1.06	1.70	50	9.05
Suggestion with current	4.38	1.42	50	3.32	1.61	50	5.24

The difference on this test is larger than that on any other of the series. Clearly the quality of suggestibility is one of the most distinct traits of the Positive group.

2. Picture Test

The Picture Test already described on page 28 furnished another measure of suggestibility. Ten of the questions which each observer was given to answer were suggestion questions, as follows:

Are there fishing nets in the boat nearest you? (There were none.)

Did you see the man holding an oar? (There was no man.)

Was he in the boat nearest in the foreground?

Did you see the boy sitting on the ledge fishing? (There was no boy.)

Did you see the sail boat at the left of the picture? (There was no sail boat in the picture.)

Was the flag at the mast head of this boat an American or a British flag? (No flag was there.)

Is the moon reflected in the water? (There was no moon.)

Did you see the waves rolling in to the shore? (The water was calm.)

Did you see the blue of the sky reflected in the water? (The picture was entirely in values of gray, and the sky was covered with clouds.)

A suggestibility score was given each paper based on the number of these questions in which the suggestion was accepted. The average results are shown in Table 20.

TABLE 20

Average Scores for Positive and Negative Groups on Suggestion Questions of Picture Test

	Positive			Negative			Observed Diff.
	A.M.	S.D.	N	A.M.	S.D.	N	P.E. of Diff.
Suggestion errors	1.64	1.54	49	1.24	1.51	50	1.98

While the difference between the two groups is not great enough to be statistically sound, the figures indicate the same tendency that was found in the other tests. It must not be overlooked that in contrast to the suggestibility experiment with electric current, this test is quite a mixed one. It involves other factors, such as memory, perception, association, and recall, which no doubt tend to blur the susceptibility to suggestion. Under the circumstances, the data strongly reinforce the findings of the preceding tests.

Summary of Findings from Suggestibility Tests

The results of this group of tests point to but one conclusion, that the individuals comprising the Positive group are much more open to the leadings and promptings of those about them than are those of the Negative group. The tendency appears in the field of primary sensation, of visual perception, and of memory. Further experimentation in other aspects of experience would no doubt confirm the conclusion. These findings also corroborate the statements of Dunlap[12] and other authorities, that those who experience the Divine Presence are more suggestible than other persons. They are more responsive to the appeal and the authority of others.

V. Review of Findings

In conclusion, it is time to pause and survey the distinguishing characteristics which have been discovered by this series of laboratory tests, and to consider the significance of each. In so far as the tests were able to measure the power and acuteness of the sensory processes, the only difference that proved to be statistically valid was the amount of pain that the two groups were willing to bear. Here the Negative group displayed the greater hardihood; the ratio of the observed difference to the probable error of the difference is so great that the difference itself could occur by chance only once in several thousand times. In light of the fact that the Negative group is only slightly less sensitive to minimal electric shock than the Positive, the great difference in the maximum amount of pain that they could bear seems to demand some other explanation than mere end-organ sensitivity. It may be that the Negative group was influenced to a greater degree by some strong mental impetus, as perseverance, determination, ''grit,'' or ''stick-to-itiveness''; but this is beyond the scope of the present study to determine.

With regard to the comparative motor abilities of the two groups, an interesting divergence appeared. The groups performed equally well in the more primitive types of reaction—those biologically oldest, and physiologically the most deep seated. They show little difference in simple reaction time, and in rate of tapping, except as the element of fatigue enters in, and none at all in muscle steadiness, except when stimulated by a desire to avoid pain. It may be significant that the Positive group fatigues more easily, but becomes steadier in muscle under the threat of pain. In the more complicated types of reaction, however, that is, in those involving a large degree of rational control, the Negative group is consistently quicker, more accurate, more skillful in coördination, and less easily fatigued. This is established by the significant differences in the tests for muscle coördination, serial reaction, and maze tracing.

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[12] Dunlap, Knight, Mysticism, Freudianism, and Scientific Psychology. C. V. Mosby Co., St. Louis, Missouri, 1920. p. 42.

In mental traits the Negative group is decidedly superior. This appears not only in the intelligence tests, where the advantage is most apparent, but also in those tests which measure such auxiliary capacities as observation, memory, and association-ideation. The failure to find superiority of the Negative group in the matter of University grade-points does not militate against this conclusion, since there are undoubtedly other than purely intellectual factors involved.

The tests on suggestibility brought forth the most striking difference between the Positive and Negative groups. Under the force of suggestion the Positive group were induced to report an experience of electric shock when no actual stimulation occurred. The Negative group uniformly failed to respond to this mythical stimulus.

In a word we may say that the Positive group was more suggestible and had greater muscle steadiness when motivated by pain. The Negative group was more intelligent; they could endure more pain, were consistently quicker, more accurate, more skillful, and less easily fatigued in movements involving central coördination and control.

CHAPTER IV

PERSONAL DATA ABOUT THE RESPONDENTS

The material of the preceding chapter was derived wholly from objective measures, except in so far as the subjective element which enters into school marks may have affected the grade points of the students concerned. The present chapter presents data of the questionnaire type, which helps to provide a background to the picture of the Positive and Negative groups already drawn.

I. Traits Scores Obtained From the Rating Device

It will be recalled that the Point-Scale Self-Rating Test contained a great number of items beside the eight which were used to differentiate the mystics from the non-mystics.[13] Many of these were significant in nature, indicating by the responses such matters as home training and discipline, religious experience, types of belief, and even personal traits. Those items which appeared to measure one particular trait or characteristic were grouped and a composite score derived for each of the 549 individuals in the original test group. The reliability of these scores was determined by the usual method of dividing the items of each group into chance halves, correlating, and applying Brown's formula. The scores were then correlated with the composite score on the Divine Presence items, in order to discover any possible relationship between this experience and the respective traits. Table 21 summarizes the data.

TABLE 21

Correlations of Traits with Divine Presence Scores

Trait	Coefficient of Reliability	Correlation with Divine Presence Items
Religious Conservatism	.92	.635
Religious Training	.86	.399
Home Discipline	.62	.039
Religious Activities	.72	.678
Inferiority-Superiority	.43	.055
Optimism-Pessimism	.56	–.276
Conscientiousness	.51	.238
Fastidiousness	.44	.198
Pugnacity	.39	–.019
Kindliness, or Sociality	.56	.242
Emotional Stability	.33	.013

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[13] See Appendix I.

Introvert-Extrovert	.65	–.103
Parental Sympathy	.55	.181
Aggressiveness	.37	.085
Literalism-Symbolism	.48	.189
General and Political Radical	.37	.065
Acceptance-of-Bible	.92	.532

The significant facts revealed here are the comparatively high correlations between the Divine Presence experience and religious conservatism, religious training, religious activities, and acceptance of the Bible as authority. In addition, the experience may be somewhat related to the attitude of pessimism, the trait of conscientiousness, the experience of close parental sympathy, and a belief in the literal interpretation of the Bible, although the coefficients of reliability are hardly large enough to warrant a definite statement to this effect. With reference to all other traits, the relationship is one of pure chance. The high coefficients of reliability for the items relating to religious beliefs, training and activities, and the high correlations between these items and the experience of the Divine Presence should be noted. One would naturally expect this relationship to be very close, compared with any correlation between the religious experience and other emotional or character traits.

II. Church Affiliations

The only differentiating facts revealed by the respondents about their church affiliations were that eighteen of the Catholic faith appeared in the Positive group and only one in the Negative, whereas there were only two non-church members in the Positive group but fifteen in the Negative. This division is too unusual to have occurred merely by chance. It very strongly suggests the presumption that the feeling of Divine Presence and its opposite are matters of training as much as they are matters of fundamental psychological make-up.

There was some ground accordingly for supposing that the strong tendency of the Catholics and the non-church individuals to place themselves in the Positive and Negative groups, respectively, might be a major factor determining the differences reported in the preceding chapter. In order to test this hypothesis, means were calculated for the two opposed groups after the elimination of Catholics and non-church members. No consistent or significant divergences from the conclusions of the previous chapter were found.

III. Sex Differences

Another striking contrast between the groups was in the proportion of the two sexes in each. The positive group consisted of 12 men and 38 women, as against 36 men and 14 women in the Negative group. The suspicion at once occurs that the experience or non-experience of the Divine Presence may be entangled with certain traits belonging peculiarly to one sex or the other. Pratt[14] states that the experience of coming into conscious connection with a larger life is experienced more often by girls than by boys, due perhaps to the fact that the boys are too much taken up with the objective world for inner feelings to develop. Dunlap[15] also presents the same idea and speaks of the strength of the sexual factor.

In this case there was sufficient reason to suppose that sex might be causing some of the differences between the Positive and Negative groups. Accordingly, as in the study of Catholic and non-church membership, the attempt was made to eliminate this factor.

As a first step, the average scores of Positive and Negative groups, keeping men and women separate, were determined for those tests showing large differences as originally determined. This made it possible to compare women in the Positive group with women in the Negative group; similarly the comparison was made for the men. Twenty tests, which had yielded differences three or more times their P.E.'s, were studied. For the men, the difference was in the same direction for each test as had already appeared within the entire group, although the amount of the difference varied. The same results were obtained from the women in 14 of the 20 tests. In three of the remaining tests, fatigue in tapping, the second minute of the coördination test, and the amount of time required to solve the fifth maze, the tendencies were reversed.

The above analysis shows in a rough way that the differences between Positive and Negative groups are real tendencies and not fortuitous differences resulting from the proportion of the two sexes. In a few instances, however, the sex factor is important. Thus, on ability to withstand pain, men achieve much higher scores than women. There being relatively more men in the Negative group, it follows that the Negative group appears to be more superi-

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[14] Pratt, James Bissett, Psychology of Religious Belief. The Macmillan Co., 1916, p. 226-7.

[15] Dunlap, Knight, Mysticism, Freudianism, and Scientific Psychology. C. V. Mosby Co., St. Louis, 1920, p. 32, 39-40.

or than it really is. In an attempt to determine the exact significance of such an item irrespective of sex, the following procedure was used: The mean scores for men and for women were separately determined for the twenty most significant items. The difference between these means was added to or subtracted from the score of each individual woman so that when the mean score of all the women was recalculated it would coincide exactly with the mean score of all the men. With the scores of individual women corrected, the cases were again sorted into positive and negative groups and new means, standard deviations, and probable errors determined. If the original difference is largely due to sex, the above procedure will result in new means which will show an insignificant difference. If the original difference is not due to sex, the above procedure will not alter the significance of the difference. Below, for the reader's convenience, is tabulated a summary of the findings regarding the influence of the sex factor in the significant items.

TABLE 22

Ratios of Difference on the 20 Significant Tests Recalculated to Eliminate the Factor of Sex

Test	Gross Ratio	Corrected Ratio
Holes with pain	3.96	2.90
Maximum pain	5.67	1.47
Suggestion		
Without current	9.05	6.80
With current	5.24	5.20
Fatigue in tapping	3.80	2.10
1st minute	4.76	1.00
Last minute	3.62	.10
1st plus last minute	4.70	.70
Serial Reaction		
Time in seconds	3.60	3.10
Errors	3.15	2.90
3rd quarter	3.22	2.90
4th quarter	3.55	2.80
High School Content Examination	5.69	4.16
Iowa Comprehension Test	5.70	3.51
Thorndike Intelligence Examination	3.09	2.90
Total Intelligence	5.77	4.85
Mazes—Time in seconds		
No. 1	5.17	2.10
No. 3	3.04	.60
No. 4	3.48	2.10
No. 5	3.52	1.07

From the table it is clear that in some cases a large part of the difference in score was due to sex. Particularly is this true in the case of maximum pain, muscle coördination, and maze tests. Here the gross difference is practically erased by the correction. In a few of the tests, while the correction has brought the average scores of the two groups closer together, the differences are still outstanting. The tests of suggestion with electric current, serial reaction time, errors in serial reaction, and Thorndike's Intelligence Examination were altogether unaffected.

IV. Personal Data Questionnaire

After all the data had been gathered through the individual and group tests, a questionnaire (see Appendix II) was mailed to each of the hundred students who had coöperated in this study. The questions asked were on personal items supplementary to the experimental data. From the one hundred questionnaires sent out, 71 were returned—33 from the Positive group and 38 from the Negative. A summary of the replies on sample items is given in the following table:

TABLE 23

Tabulation of Answers to Sample Items in Personal Data Questionnaire

No.	Question	Positive Group				Negative Group			
		Yes	No	Indefinite	Blank	Yes	No	Indefinite	Blank
10	Any special temptations you have to fight?	9	20	1	3	14	17	0	6
11	Ever had visions of absent or dead friends?	11	19	1	1	4	28	3	2
12	Ever heard the voice of absent or dead friends?	3	30	0	0	1	34	0	2
13	Ever heard voices or sounds or experienced revelations or trances of any kind not accounted for by ordinary perception?	3	30	0	0	0	35	0	2
14	Ever had promptings within or inner voices not of ordinary experience?	11	19	3	2	4	31	0	2
15	Ever had any desire, weak or strong, to suffer for others?	22	10	1	0	15	19	0	3
16	Have you had times of spiritual exaltation?	18	11	0	4	1	34	0	2
17	Have you ever had times when you felt God's nearness?	32	0	0	0	3	31	0	3

22	Has your religious practice or attitude been influenced at any time by impending danger or sickness or disappointment or death of a friend or relative?	20	12	0	1	6	28	0	3

Taking up each question in detail, a number of replies are given which further help to distinguish the two groups, as well as to validate the previous rankings on the self-rating test.[16]

Questions 1 to 6. Miscellaneous data: answers too varied to use.

Question 7. The two groups agree in ranking themselves ''just above the average'' as to their standing in their high school graduating classes. These reports are quite comparable with their present academic achievements in the University. In grade points the two groups are equal, their average being very slightly over two.

Question 8. No important difference appeared between the groups in their proposed choice of vocation.

Questions 9 and 10. Various descriptive words were used by the respondents to characterize their dreams; but an elaborate analysis failed to disclose any real dissimilarity between the groups. The same was true for question 10, ''Any special temptations you have to fight?''

Question 11. This question, concerning ''visions of absent or dead friends,'' was interpreted in at least three different ways by those who answered it in the affirmative. Some described visual dreams, others visual images, but a third group of responses was not so easily named. There were five of these—all from the Positive group, as follows: ''After my grandfather died I used to see him —that is, I thought I saw him''; ''See them as if they were alive and near me''; ''As I would think of one during consciousness''; ''After the death of my brother I often sat in the yard thinking I was playing with him''; and ''I have seen a dead friend in our home talking to me.''

Question 12. ''Ever heard the voice of absent or dead friends?'' The two groups responded in general in the negative. One member of the Positive group stated, ''I have heard what I took to be my mother's and father's voices once or twice.'' One from the

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[16] Details of the replies to this questionnaire are available in the original manuscript on file in the Library of the University of Iowa.

Negative group answered, ''Yes, I can hear my mother and others talk quite clearly.'' It was impossible to determine whether these two responses are to be explained as very clear auditory imagery or as hallucinatory experiences.

Question 13. ''Ever heard voices or sounds or experienced revelations or trances of any kind not accounted for by ordinary perception?'' This was answered affirmatively by three of the Positive group. One wrote, ''After the death of a baby brother, I used to think I saw him at night among the clouds.'' The other two used vague and contradictory terms with little meaning. This was due no doubt to the fact that the experience was largely emotional, hence difficult to describe. As an explanation, one of them suggested, ''These noises were accounted for because I was scared terribly a long time ago by the unnoticeable appearance of a man.'' The other explains, ''When I am by myself, in some quiet place, thinking or praying, I have often felt some strange absent awe.''

Question 14. Of those who acknowledged the experience of ''promptings within or inner voices not of ordinary experience,'' two, a Positive and a Negative, explained that they were prompted by their conscience. Two others, one from each group, attributed the experience to ''something within'' and the ''inner self.'' Two more from the Negative, and nine from the Positive group, described the experience in terms of divine promptings.

Question 15. Of the thirty-seven who indicated by their answers to this question that they had had the desire to suffer for others, fourteen Positives and ten Negatives stated a willingness to exchange places with suffering parents, near relatives, fiancées, children in trouble, and the weaker who were being oppressed by the stronger. The kind of suffering they were willing to undergo, whether physical or mental or both, was not indicated. Two others, both Negatives, wrote that they would feel sorry for one going through humiliation and would prefer to bear the unpleasantness for him. The remainder, eight Positives and five Negatives, definitely referred to real physical discomfort or torture.

Question 16. ''Have you had times of spiritual exaltation?'' Only two of the twenty-one who answered this question affirmatively belonged to the Negative group. One of these described her experiences more as ''mental exaltation'' than as ''spiritual exaltation'' in the common sense of the term; ". . . Viewing a lovely scene—a fresh morning—reading a beautiful psalm—or a bit of fine literature—an interesting picture." The other had known the experience only once—after an attendance at a revival meeting. To quote, "I had the most pleasant feeling inside of me. I felt as though something bad or dirty or some disease had left me. It was the happiest feeling I have ever had and I felt almost twenty pounds lighter."

Question 17. Only three of the Negatives state that they had ever felt God's nearness. They describe the experience as follows: "During childhood—years 12 to 14"; "At time of conversion—some inner feeling and changed attitude toward God"; and "When I was very, very sick." Thirty of the Positive group describe such experiences. For the sake of brevity, only a few characteristic quotations are given here: "In time of sorrow when someone was needed to lean upon." "I always have a sense of the nearness and protection of God under all circumstances." "In times of accident and sickness I am sure He was near and heard and answered my prayer." "Feeling of protection and guidance. Hardly a thing I could describe in words."

Question 18. "Describe in some detail the religious surroundings and experiences of your childhood." In responding to a general statement of this kind, it is to be expected that many details important in one's life will be overlooked. Likewise, two people who have had very similar surroundings and experiences might not record the same details. In checking the replies, each individual detail was tabulated. These items, together with the number of students noting each, are given in the following table.

TABLE 24

Religious Surroundings and Experiences

	Positive	Negative
Family worship	3	2
Attended Sunday School	18	29
Attended church	17	15
Church membership	2	2
Childhood prayers	6	1
Grace at meals	2	1
Home training in religion	6	1
Father religious	2	3
Mother religious	6	4

Parents attend church	5	1
Confirmed	2	2
Father a church member	3	3
Mother a church member	3	4
Learned catechism	2	1
Strict Catholic environment	5	1
Active in Christian Endeaor	1	0
Taught Sunday School	1	0
Read Bible daily	1	0
Baptized	0	1

More of the Negative group stated that they had attended Sunday School; but the Positive group seem to have been brought up in homes which gave more attention to expressions of formal religion.

Question 19. "What changes have occurred in your religious beliefs and attitudes?" Only two items of significance were found here: Fourteen of the Positive group, as against one of the Negative group, declared that they were gradually changing to a broader view of religion. The Negative group has already taken that step. Eleven of them state that they are turning to doubt, as against one of the Positive group.

A few state the age at which the changes occurred and the circumstances accompanying them. Four give as the most significant time in their "gradual change to a broader view" years 15-17. Two others state that it was the time spent in the University. Two changed since entering the University from a literal to a free interpretation of the Bible. One lost his belief in a future heaven and hell at the age of 14. The two who rebelled against religious services did so at the ages of 14 and 16-18. Those who had gone over to atheism did so at the ages 10-11, 9-17, 14, and 17. Of those whose beliefs had given way to doubt, four stated the ages of 12-18, 15-18, 14, and 16 respectively. Two others indicated that doubt had first arisen in connection with the study of evolution; and four gave the time of doubt more generally as during their attendance at the University. One states that the change from sympathy to indifference toward religion came since his enrollment in the University; another, with the study of evolution. On the contrary, two write that their attitudes have changed from antagonism to sympathy since they entered the University, and another declares his beliefs have been growing stronger during his University career.

Question 20. "Give an account of any marked religious experiences you have had.'' Only two of the Negative group responded to this: ''Religion, where I did embrace 'marked experiences,' was the most private of all my thoughts''; and ''I had a thrill for a few days after a supposed conversion at the age of 8 to 10, but it wore off and I felt the same as ever.'' Five persons of the Positive group replied as follows: ''All my prayers have been answered regarding deep serious trouble.'' ''At the time of conversion I experienced a great satisfaction and a state of restfulness of mind which has never left me.'' ''The only marked experiences have been the absolute answer to all my prayers.'' ''At the age of seven I received the Sacrament of the Holy Eucharist for the first time. This was probably the greatest experience of my life. At the age of 12 I received the sacrament of confirmation which gave me strength to carry on through life under the cross of Christ.'' ''More than my share of social and economic misfortunes resulting in almost a tremor of religion followed by additional strength in religion and general morals.''

Question 21. The inquiry, ''What is your present attitude toward religion?'' brought forth responses which on the whole were quite characteristic of the two groups. Most of the members of the Positive group declare their faith in religion and state their belief in its necessity, its importance, its comforting influence, its uplifting power, and its teachings. On the other hand, the reports of the Negative group indicate with but a few exceptions, disbelief, indifference, doubt, disgust, lack of faith, agnosticism, fear, and atheism. The responses to this question are quite illuminating, but are too numerous and individual in character to be given here.

Question 22. ''Has your religious practice or attitude been influenced at any time by impending danger or sickness or disappointment or death of a friend or relative?'' Sixteen of the Positive and six of the Negative groups answered in the affirmative. The reports, on the whole, show that serious troubles have tended to strengthen the religious convictions of the mystics, but to weaken those of the Negatives.

Question 23. ''What reactions against religion have you experienced, if any, and what marked antipathies or antagonisms have you felt that are not described in the above account?'' This question was answered in the affirmative by nine of the Positive and sixteen of the Negative groups.

Review of Findings in Chapter IV

Those who experience the Divine Presence rate themselves as conservative in religious beliefs. They accept the Bible as authority, and are inclined to take its meaning literally. They have had religious home training and are still engaged in religious activities. The guidance given to them by their parents has been sympathetic and tactful. They seem to be a bit conscientious, fastidious, and pessimistic. In all these respects the Negative group displays the opposite characteristics.

The Catholic element predominates in the Positive group, and the Negative group has an excess of non-church members. But this does not seem to have overloaded the differences brought out by the laboratory tests. When the averages are struck exclusive of Catholics and non-church members, the differences still remain unchanged.

The data indicate that women are more subject to the experience of the Divine Presence than men, and that sex differences play a clear, though minor rôle in the religious life.

As might be expected, the Positive group reports a rich and varied assortment of experiences, more interesting than the phenomena of ordinary perception. Many more of them have had ''marked religious experiences:'' times of spiritual exaltation, and distinct moments when they felt the nearness of God. In their homes more attention was given to religious practice and observances. A number of them are gradually feeling their way to a broader view of religion. Their whole attitude toward religion is positive, while that of the Negative group is almost entirely antagonistic. Crises in life seem to have strengthened the religious convictions of the Positive group but to have weakened those of the Negative group. The former are less reactionary against religion than the latter. In short, the Positive group feel at home within the folds of organized religion, while the non-mystics are indifferent or estranged.

CHAPTER V

REVIEW AND STATEMENT OF CONCLUSIONS

When two types of individuals can be so clearly differentiated as were the mystics and non-mystics of this study, certain fundamental traits in the psychological make-up of each ought to be apparent. What clear-cut differences emerge from the experimentation to which the one hundred individuals of this investigation were subjected? For the sake of presenting these in the light of the whole study, a summary of the findings is given in the following table.

TABLE 25

Summary of Findings

Nature and Degree of Difference Between the Positive and Negative Groups on All Tests

Tests	Positive Group Compared with Negative Group	Observed Diff. / P.E. of Diff.
SENSORY DISCRIMINATION		
Visual Discrimination		
Number right	more	1.86
Errors	more	.77
Weight Discrimination		
Number right	more	.32
Errors	more	1.00
Sensitivity to Electric Current		
1st sensation	more sensitive	1.69
1st pain	more sensitive	1.88
Maximum pain	less	5.67
Auditory Discrimination		
Rhythm	poorer	1.66
Pitch	poorer	.02
Intensity	better	.54
Time	poorer	1.10
Consonance	better	.20
MOTOR ABILITIES		
Simple Reaction Time	slower	1.87
Rate of Continuous Movement		
1st minute	slower	.75
Last minute	slower	2.23
1st divided by last minute	more fatigued	3.80

Tests	Positive Group Compared with Negative Group	Observed Diff. / P.E. of Diff.
1st plus last minute	slower	1.63
Muscle Steadiness		
Holes with positive directions	less steady	.15
Holes with negative directions	more steady	.59
Holes with pain	more steady	3.96
Trough with positive directions	more steady	.85
Trough with negative directions	less steady	.27
Trough with pain	more steady	.45
Eye-Hand Coördination		
1st minute	poorer	6.92
Last minute	poorer	6.16
1st divided by last minute	greater gain	1.26
1st plus last minute	poorer	6.54
Serial Reaction		
Time	slower	3.60
Errors	more	3.15
1st quarter	more	1.89
2nd quarter	more	2.88
3rd quarter	more	3.22
4th quarter	more	3.55
Tracing Mazes		
No. 1	slower	5.17
No. 2	slower	1.81
No. 3	slower	3.04
No. 4	slower	3.48
No. 5	slower	3.52
INTELLECTUAL TRAITS		
Memory		
The Picture Test	poorer	1.55
Aussage		
Number right	less	1.65
Number wrong or repeated	more	.55
Follow Written Directions		
Number followed	less	1.01
Number wrong	more	2.83
Ethical Discrimination	poorer	.39
Abstract Judgment	poorer	1.38
Spatial Imagination—Paper Folding		
Number right	more	.72
Point score	equal	0.00
University Grade Points	less	.90
Intelligence Tests		
Iowa Comprehension Test	poorer	4.77
Iowa High School Content Exam.	poorer	5.69
Thorndike Intelligence Test	poorer	3.09
Total Intelligence	poorer	5.77

Tests	Positive Group Compared with Negative Group	Observed Diff. / P.E. of Diff.
SUGGESTIBILITY		
Without Electric Current	greater	9.05
With Electric Current	greater	5.24
Picture Test—Suggestion Questions wrong	greater	1.98

Among these results, only those which record a difference that is at least three times its probable error may be regarded as really substantial. In addition, some of these are caused by the fact that the Positive group contained a majority of women, while men predominated in the Negative group. When the data on the tests of maximum pain, muscle coördination, and maze running are corrected for this factor, the difference between the groups practically disappears. This leaves the following abilities in which the Negative group is decidedly superior: general motility as measured by rate of tapping, eye-hand coördination, serial reaction, general intelligence, and resistance to suggestibility.

The results of the self-rating tests and of the personal-items questionnaire supplement and in part explain these findings. The members of the Positive group have been brought up in homes in which religious practices are commonly observed; they have had religious training, and are still active in religious work. In belief they are conservative, tending to accept the Bible literally as authority. They have ''visions,'' hear ''voices'' and sounds, and experience other revelations not accounted for by ordinary perception. They report times of spiritual exaltation, feelings of God's nearness, and other experiences of a marked religious type. Crises in life apparently have strengthened their religious faith; and many of them feel that they are coming gradually to a broader view of religion. The greater willingness that they express ''to suffer for others'' may indicate that they are more socially-minded. Seventy-six per cent of this group are women.

In contrast, those who classify themselves as non-mystics have come from homes in which little attention was given to the forms of organized religion. They have had little formal religious training and do not participate in religious activities. In belief they are radical, questioning the Bible and its authority, and in general turning from the tenets of orthodox faith. Few of them report the experience of visions, ''voices,'' or other semi-ecstatic phenomena; nor do they acknowledge the feeling of God's nearness, of spiritual exaltation, or other distinctively religious experiences. The crises in their lives have increased their inclination towards non-religion; and many of them are now in a state of doubt or decided antagonism. Seventy-four per cent are men.

In attempting to plot in diagrammatic form the contrasts just presented, Figure 6 was constructed. (See Appendix III, Figure 6). The circles represent the two groups of students, as indicated. The comparative lengths of the line-segments connecting the two indicate roughly the relative amounts of the trait possessed by each group.

At first thought the facts might be taken to indicate considerable superiority on the part of the non-mystics. But the better showing of the Negative group in certain kinds of specific abilities, and even in the intelligence tests, need not necessarily be interpreted as evidence of a higher type of mentality. The mentality may be of a different kind, or at least, organized on a different emotional basis and derived from another set of experiences. And it is conceivable that the Positive group, possessing a more intimate feeling of inwardness of experience, may be heading toward a richer integration of selfhood that will bring efficiency and release of power. This can be determined only by following their development through a period of years or by supplementing the present study of young people in college life by a cross-section picture of more mature-minded men and women.

But there are certain evidences that the mystics are already finding ways to compensate for the disabilities which the tests indicate. Notwithstanding their poor showing on the intelligence tests and their inferiority in motor capacities, they have kept pace in University grades with the non-mystics who are more richly endowed. From the standpoint of achievement they are not inferior.

With less native speed and alertness, therefore, how have the mystics managed to hold their own? The tests suggest that they are more open to the motivating influences that the University seeks to cast around its students. They improve quickly under threat of punishment. They respond to hints and promptings from those about them. More used to appreciative understanding, and perhaps more socially-minded, they go at problems with a positive mental set. Their attitude toward religion is sympathetic;

and their continued participation in religious activities implies a striving for that which is ethically and morally right.

Does the mystic experience play a part in this? From their confessions it is evident that the experiences themselves are satisfying, uplifting, and strengthening to the individuals. Beyond this it is altogether probable that they bring a feeling of adjustment and peace which enables the individuals to use more effectively the relatively inferior capacities which, according to the tests, they seem to have. This conclusion awaits further investigation before it can be made with certainty.

It must not be supposed that the findings of this research are applicable to all who do or do not experience the Divine Presence. They are known to be representative of students at the State University of Iowa, and it is reasonable to expect that they would hold true for other groups of similar age, environment, and attainments. Tentatively held, they may serve as the basis for further investigation, and the discovery of more universal conclusions.

BIBLIOGRAPHY

1. Coe, George A. *The Spiritual Life,* Eaton and Mains, N. Y., 1900.
2. Drummond, Henry. *Natural Law in the Spiritual World.* Hovendon Company, N. Y.
3. Dunlap, Knight. *Mysticism, Freudianism, and Scientific Psychology.* C. V. Mosby Company, St. Louis, 1920.
4. Hartshorne, Hugh. Measurements of Growth in Religion. *Religious Education,* XIV, 1919, pp. 148-155.
5. Illingworth, J. R. *Christian Character.* Macmillan, London, 1903.
6. Illingworth, J. R. *Divine Transcendence.* Macmillan, London, 1911.
7. Inge, William Ralph. *Christian Mysticism.* Scribner's, N. Y., 1899.
8. Inge, William Ralph. *Outspoken Essays.* Longmans Green, London, 1925. Chapter 9.
9. Inge, William Ralph. *Types of Christian Saintliness.* Longmans Green, N. Y., 1915.
10. Inge, William Ralph. *English Mystics.* John Murray, London, 1907.
11. Jacks, L. P. *The Lost Radiance of the Christian Religion.* Doran, N. Y., 1924.
12. Jacks, L. P. *Religious Perplexities.* Doran, N. Y., 1923.
13. James, William. *Varieties of Religious Experience.* Longmans Green, N. Y., 1903.
14. Jones, Rufus M. *Fundamental Ends of Life.* Macmillan, 1924.
15. Jones, Rufus M. Mystic's Experience of God. *Atlantic Monthly,* 128: 637-45; November, 1921.
16. Jones, Rufus M. *Studies in Mystical Religion.* Macmillan, 1909.
17. Knight, Rachel. *The Founder of Quakerism.* Swarthmore Press, London, 1922.
18. Leuba, James H. The Contents of Religious Consciousness, *Monist,* XI, pp. 533-573.
19. Leuba, James H. Introduction to a Psychological Study of Religion. *Monist,* XI, pp. 195-255.
20. Leuba, James H. On the Psychology of a Group of Christian Mystics. *Mind,* NS., XIV, pp. 15-27.
21. Leuba, James H. *The Psychology of Religious Mysticism.* Harcourt Brace, London, 1925.
22. Leuba, James H. Religion; Its Impulses and Its Ends. *Bibliotheca Scara,* LVIII, pp. 757-769.
23. Pratt, James Bissett. *Psychology of Religious Belief.* Macmillan, 1916.
24. Pratt, James Bissett. *The Religious Consciousness.* Macmillan, N. Y., 1920.
25. Royce, Josiah. *The Problem of Christianity.* Macmillan, 1913.
26. Royce, Josiah. *Sources of Religious Insight.* Scribner's, N. Y., 1912.
27. Royce, Josiah. *The World and the Individual.* Vol. I, p. 81, Macmillan, N. Y., 1912.

28. Starbuck, E. D. The Intimate Senses as Sources of Wisdom. *Journal of Religion,* I, No. 2, March, 1921.
29. Starbuck, E. D. *The Psychology of Religion.* Scribner's, N. Y., 1911.
30. Underhill, Evelyn. *Mysticism.* Dutton, N. Y., 1912.
31. Underhill, Evelyn. *Mystic Way.* Dutton, N. Y., 1913.

APPENDIX I

BELIEFS AND ATTITUDES

Below are pairs of opposite qualities or traits. The dotted line between each pair is a scale on which you are asked to rate yourself. If you think you have equal amounts of both qualities or that you are about the average human being, check the colon; if more of one than the other, check to the right or to the left of the colon as far as best represents your case.

For example, if you should have quite light hair your statement of that item might be like this:

Very dark hair . . . : . ./ . Very light hair

If the stories of Abraham Lincoln are true it is likely he might have rated himself with respect to kindliness or cruelty something like the following:

Kindliness ./ . . : . . . Cruelty

Check always on a dot or on the colon rather than between them.

Begin slowly. See what each item means before you check. When you get the swing of it you can speed up. Work hard. Make sure that each judgment is correct.

1	Very dark hair	. . . : . . .	Very light hair
2	Very light eyes	. . . : . . .	Very dark eyes
3	Extremely blonde complexion	. . . : . . .	Extremely brunette complexion
4	Always healthful	. . . : . . .	Extremely delicate in health
5	Avoid using slang	. . . : . . .	Use slang a great deal
6	Work systematically	. . . : . . .	Work without system
7	Emotionally explosive	. . . : . . .	Emotionally well poised
8	Faithful in work	. . . : . . .	Neglectful of work
9	Believe in socialism	. . . : . . .	Am against socialism
10	Enjoy sermons	. . . : . . .	Dislike sermons
11	Careful in workmanship	. . . : . . .	Careless in workmanship
12	Extremely fond of children	. . . : . . .	Dislike children
13	Lose head in dangerous circumstances	. . . : . . .	Keep cool in dangerous circumstances
14	Warm and friendly with others	. . . : . . .	Too antagonistic toward others
15	Much given to anger	. . . : . . .	Decidedly even tempered
16	Strong feeling of being inferior to others	. . . : . . .	Strong tendency to feel superior to others
17	Bashful and retiring	. . . : . . .	Bold and forward
18	God seems remote	. . . : . . .	God seems near

19	Tendency to be secretive	. . . : . . .	Open and frank
20	No faith in prayer	. . . : . . .	Implicit faith in prayer
21	Often tardy or lax in keeping appointments	. . . : . . .	Prompt in keeping appointments
22	Sympathetic with doctrines of church	. . . : . . .	Antagonistic to doctrines of church
23	No concern about others	. . . : . . .	Wide sympathy with others
24	Work best alone	. . . : . . .	Work best with others
25	Like to keep quiet in company with others	. . . : . . .	Like to be a leader in company with others
26	Always return money when receiving too much change	. . . : . . .	Never return money when receiving too much change
27	Never lend	. . . : . . .	Generous in lending to any one who asks
28	An easy mark for a good salesman	. . . : . . .	Can't be sold anything I do not want
29	Keep troubles to myself	. . . : . . .	Tell troubles freely to others
30	Most preachers play on the superstitions of people	. . . : . . .	Most preachers are sincere
31	Public officials are for most part honest	. . . : . . .	Public officials are for most part playing politics
32	Religious progress must come through the churches	. . . : . . .	Religious progress must come chiefly outside the churches
33	I give liberally to charity	. . . : . . .	I dodge requests for charity
34	Usually feel depressed	. . . : . . .	Usually feel elated
35	Father always sympathetic with my ideas	. . . : . . .	Father usually unsympathetic with my ideas
36	Mother always sympathetic with my ideas	. . . : . . .	Mother usually unsympathetic with my ideas
37	Fear what lies beyond death	. . . : . . .	Look forward with pleasure to it
38	Unusually thoughtful of others	. . . : . . .	Too unmindful of others
39	Feel in harmony with divine purpose	. . . : . . .	Feel out of harmony with divine purpose
40	Desire to succeed financially	. . . : . . .	More interested in other things
41	Take commands or discipline cheerfully	. . . : . . .	Ignore commands or discipline
42	Thoughts chiefly about self	. . . : . . .	Mind on other things than self
43	Shirk chores and duties at home	. . . : . . .	Conscientious and faithful at duties
44	Morbidly conscientious	. . . : . . .	Chronically irresponsible
45	Home discipline severe	. . . : . . .	Home discipline gentle

46	Approve use of tobacco in others	. . . : . . .	Detest use of tobacco in others
47	Use tobacco habitually	. . . : . . .	Conscientiously opposed to it
48	Strongly favor conscientious objectors of war	. . . : . . .	Antagonistic toward conscientious objectors
49	Detest use of slang in others	. . . : . . .	Enjoy hearing slang in others
50	Christians are better than non-Christians	. . . : . . .	Non-Christians are better than Christians
51	Should cling to the faith of our fathers	. . . : . . .	Should depart from the faith of our fathers
52	Dreams tend to be depressing	. . . : . . .	Dreams tend to be uplifting
53	Like to speak in public	. . . : . . .	Dislike to speak in public
54	Conduct conforms with ideals	. . . : . . .	Conduct much at variance with ideals
55	No tendency to blush	. . . : . . .	Much tendency to blush
56	Confident and fearless	. . . : . . .	Troubled with doubts and fears
57	Aggressive	. . . : . . .	Easy going
58	Persistent in an undertaking	. . . : . . .	Shifting from one thing to another
59	Resting upon what you are told	. . . : . . .	Fondness for finding out things for yourself
60	The churches teach that Jesus actually changed water into wine	. . . : . . .	They teach it as figurative
61	The churches require the literal interpretation of the New Testament miracles	. . . : . . .	They require only a symbolic interpretation
62	Believe the Old Testament story of creation	. . . : . . .	Disbelieve it
63	Sympathetic with doctrines of church	. . . : . . .	Antagonistic to doctrines of church
64	Believe the Bible infallible	. . . : . . .	Disbelieve it
65	Believe that death ends all	. . . : . . .	Disbelieve it
66	Believe that religion is largely superstition	. . . : . . .	Disbelieve it
67	Believe in the resurrection	. . . : . . .	Disbelieve it
68	Believe in the Deity of Jesus Christ	. . . : . . .	Disbelieve it
69	Believe that Jesus Christ was born of a virgin	. . . : . . .	Disbelieve it
70	Believe Lazarus was raised from the dead	. . . : . . .	Disbelieve it
71	Believe that Jesus walked on the water	. . . : . . .	Disbelieve it

The following scale differs from the above in that the colon is at the end. It denotes simply the absence of the quality or trait indicated at the other end of the line. The end away from the colon denotes the extreme as before. Check your position on each item.

72	Punished often during childhood	. . . . . . :	Never punished during childhood
73	Punished severely during childhood	. . . . . . :	Punishment not severe
74	Often feel guilt or remorse for wrongdoing	. . . . . . :	Never feel guilt or remorse
75	Have sometimes felt the presence of the Holy Spirit	. . . . . . :	No such experience
76	Brought up to attend Young People's Societies regularly	. . . . . . :	Brought up to attend Young People's societies not at all
77	Attend Y.P.S. regularly now	. . . . . . :	Do not attend Y.P.S. now
78	Greatly upset by misfortune	. . . . . . :	Unmoved by misfortune
79	Bothered about unfinished work	. . . . . . :	Let it rest
80	Widely sympathetic with others	. . . . . . :	Not sympathetic with others
81	Strict discipline in home	. . . . . . :	Discipline in home slack
82	Have had moments of satisfaction of immediate communion with a Divine Presence	. . . . . . :	No such experience
83	Often jealous of others	. . . . . . :	Never feel jealous
84	Very often submissive	. . . . . . :	Never submit
85	Very strong desire to assert self	. . . . . . :	No such desire
86	Religion an important part of daily life now	. . . . . . :	Pay no attention to religion in daily life now
87	Have intimate feeling of God's love	. . . . . . :	Do not have such feeling
88	Aggressive in debate and discussion	. . . . . . :	Passive in debate and discussion
89	Distinctly religious home influence	. . . . . . :	Atmosphere of home not religious
90	Habit of praying during childhood	. . . . . . :	Never prayed in childhood
91	Consistent in prayer now	. . . . . . :	Never pray
92	Family entered seriously into family worship	. . . . . . :	No family worship
93	Brought up to attend church regularly	. . . . . . :	Brought up to attend church not at all

94	Brought up to attend Sunday School regularly	. . . . . . :	Brought up to attend Sunday School not at all
95	Father much interested in church	. . . . . . :	Father indifferent to church
96	Mother much interested in church	. . . . . . :	Mother indifferent to church
97	Attend Sunday School regularly now	. . . . . . :	Do not attend Sunday School now
98	Implicit faith in prayer	. . . . . . :	Never faith in prayer
99	Useless thoughts continually bothering	. . . . . . :	Never experience them
100	Sometimes have moments of great inspiration	. . . . . . :	Never have such experience
101	Very active in religious work	. . . . . . :	Not active in religious work
102	Enjoyed warm companionship with my father	. . . . . . :	No such companionship
103	Enjoyed warm companionship with my mother	. . . . . . :	No such companionship
104	Have a satisfying inner experience in religion	. . . . . . :	No such experience
105	Seem to have divine leadings and promptings	. . . . . . :	No such leadings and promptings
106	Seek to know God's will	. . . . . . :	No such effort
107	God sometimes seems very real	. . . . . . :	No such experience
108	High respect for the Bible as authority	. . . . . . :	Indifferent to the authority of the Bible
109	Prayers usually answered	. . . . . . :	Prayers apparently never answered
110	Have great missionary zeal	. . . . . . :	No missionary interest
111	Worry about exams	. . . . . . :	Do not worry about exams
112	Brood over troubles	. . . . . . :	Usually carefree
113	Much misunderstood by parents	. . . . . . :	No such difficulty
114	Keen feeling of rivalry	. . . . . . :	No feeling of rivalry
115	Interested in helping others	. . . . . . :	Not interested in helping others
116	Afraid of the wrath of God	. . . . . . :	No such fear
117	Have hope of a happy life hereafter	. . . . . . :	No such hope
118	Strict religious observance in home	. . . . . . :	No attention paid to religion in home

Put a check *before* the words that appeal most to you as applying to God or the Universe or whatever you consider to be the essential Reality of the World.

Power
Father
Chance
King
Judge
Forgiving
Punisher
Ruler

Mind
Loving
Law
Universe
Mystery
Comforter
All wise
God

Toiler with mankind
Force for Good
The Indwelling
Law as God's thought
All powerful
A way of speaking
Mechanism
Merciful

Order
Shepherd
Creator
Energy
Jehovah
Chaos
Force
Purpose

Now *underscore* the words in the above list that seem to you the worst.

How many children in your family ....

Your position in the family line, 1st, 2nd, 3rd, etc. ....

Church connection or preference, if any ....

Was ''confirmed'' (yes or no) .... At what age ....

Have experienced ''conversion'' (yes or no) .... At what age ....

Father's occupation ....

Place of your birth .... Brought up in town or country ....

If in town or city, approximately what population ....

Age .... Sex ....

Father's nationality .... Mother's nationality ....

Name ....

APPENDIX II

PERSONAL ITEMS SUPPLEMENTARY TO EXPERIMENTAL DATA

We appreciate very much your coöperation in securing some psychological data in the laboratory. We need some additional facts. It will help us if you will kindly react to the following items. The statements you make will be held in strict confidence. Please mail your replies as promptly as possible in the enclosed stamped envelope.

Use the backs of these sheets and any other paper you need to make your answers complete.

1 Name in full.. Height............ Weight............
2 Games you like best ....
3 Sports you engage in most ....
4 Teams to which you have belonged ....
5 Honors or victories you have won in athletics ....
6 When you have a holiday how are you most apt to use it? ....
7 Your standing in your high school graduating class: (Check)
Lowest 20% .... Just below average .... Average ....
Just above average .... Highest 20% ....
8 Vocation you expect to follow or to which you incline ....
9 What is the character of your dreams? ....
10 Any special temptations you have to fight? .... Describe ....
11 Ever had visions of absent or dead friends? .... Describe ....
12 Ever heard the voice of absent or dead friends? .... Describe ....
13 Ever heard voices or sounds or experienced revelations or trances of any kind not accounted for by ordinary perception? .... Describe ....
14 Ever had promptings within or inner voices not of ordinary experience? .... Describe ....
15 Ever had any desire, weak or strong, to suffer for others? ....
Describe ....
16 Have you had times of spiritual exaltation? .... Describe ....
17 Have you had times when you felt God's nearness .... Describe ....
18 Describe in some detail the religious surroundings and experiences of your childhood ....
19 What changes have occurred in your religious beliefs and attitudes? Describe the periods one by one, giving the age and circumstances of each ....
20 Give an account of any marked religious experiences you have had............
21 What is your present attitude toward religion? ....
22 Has your religious practice or attitude been influenced at any time by impending danger or sickness or disappointment or death of a friend or relative? .... Describe ....
23 What reactions against religion have you experienced, if any, and what marked antipathies or antagonisms have you felt, that are not described in the above account? ....

APPENDIX III

APPARATUS USED

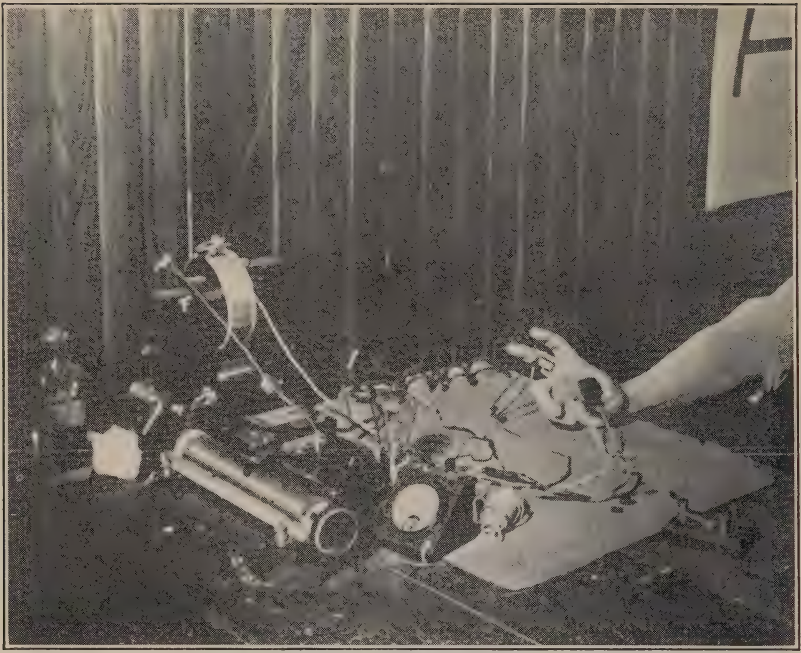

Figure 1. Apparatus for measuring sensitivity to electric current, also suggestibility.

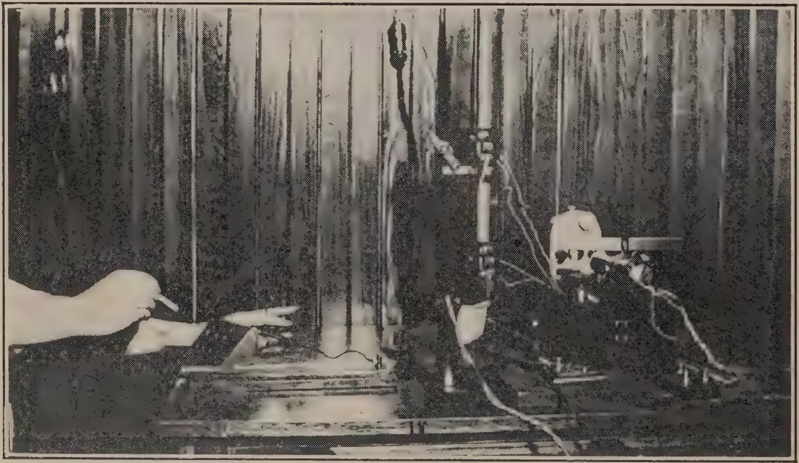

Figure 2. Measuring muscle steadiness.

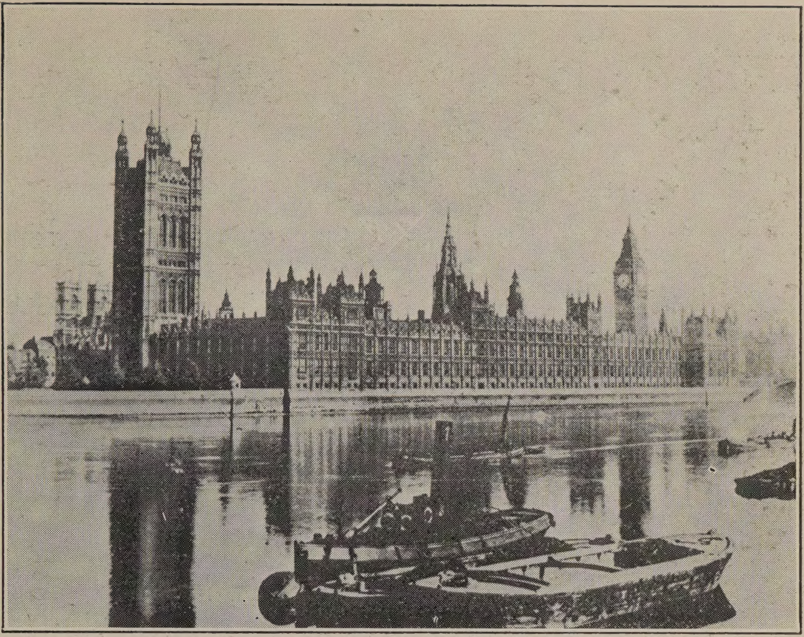

Figure 3. Picture used in testing memory, also suggestibility.

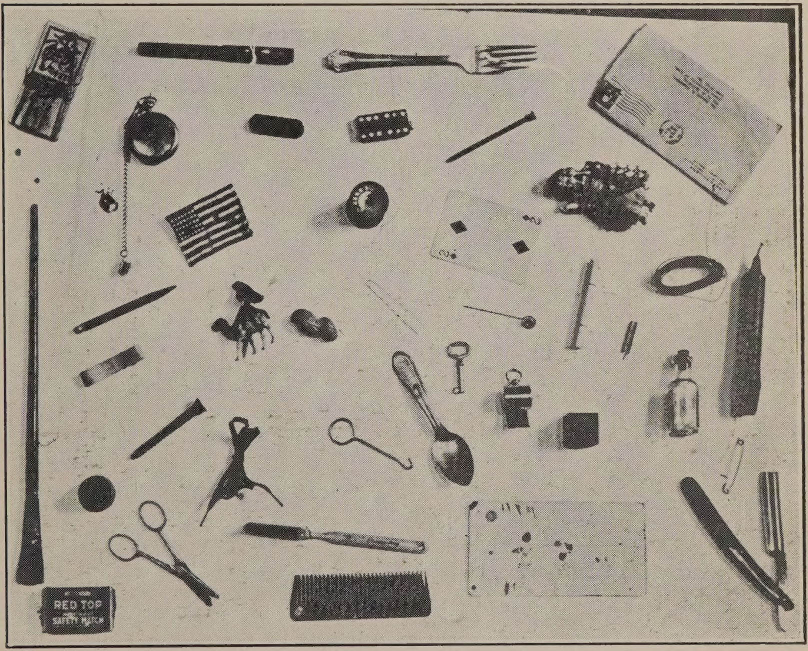

Figure 4. Lay-out for Aussage test of memory.

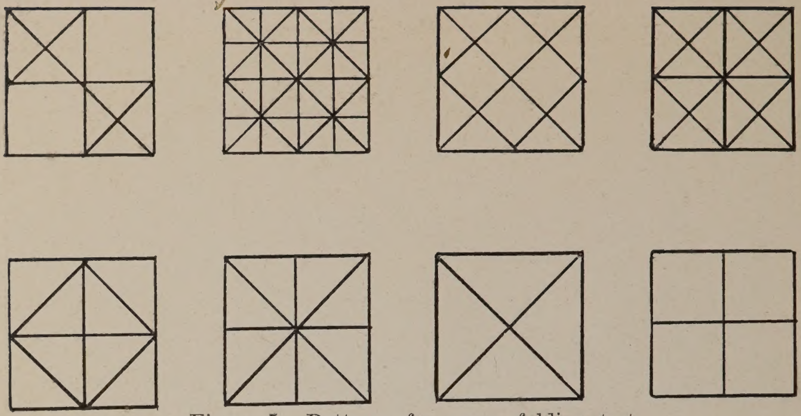

Figure 5. Patterns for paper folding test.

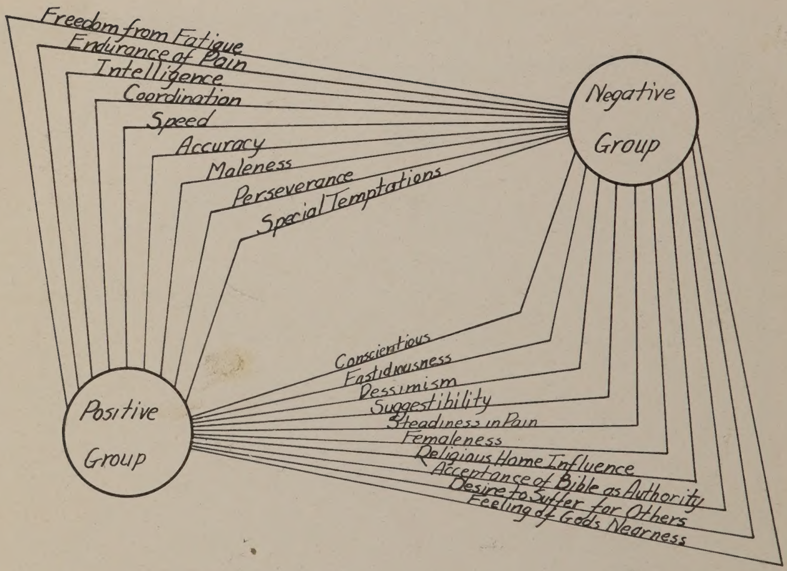

Figure 6

Figure 6. Schematic diagram of relations of the two groups.